

## IDAHO DEPARTMENT OF FISH AND GAME

### FEDERAL AID IN FISH RESTORATION 1995 JOB PERFORMANCE REPORT PROGRAM F-71-R-20



### REGIONAL FISHERIES MANAGEMENT INVESTIGATIONS CLEARWATER REGION (Project I, II, IV)

#### PROJECT I.

Job a.

Job b.

Job c.

#### PROJECT II.

#### PROJECT IV.

#### SURVEYS AND INVENTORIES

Clearwater Region Mountain Lakes Investigations

Clearwater Region Lowland Lakes Investigations

Clearwater Region Rivers and Streams Investigations

#### TECHNICAL GUIDANCE

#### POPULATION MANAGEMENT

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## **JOB PERFORMANCE REPORT**

State of: Idaho

Name: Fisheries Management

Project I: Surveys and Inventories

Subproject I-B: Clearwater Region

Job No.: a

Title: Mountain Lakes Investigations

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

Forty-four mountain lakes were surveyed in the Clearwater National Forest July through September 1995. Seventeen lakes were barren of fish and, of the remaining 26; nine support abundant stunted brook trout *Salvelinus fontinalis* populations. Only five of the surveyed lakes have been stocked in recent history, and three (Beaver, Rudd-Moore and Fire lakes) will be reinstated to the three-year rotation-stocking schedule. East Colt Creek and Moore lakes will be resurveyed in 1998 to determine if natural reproduction is adequate to sustain a fishable size population.

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## **INTRODUCTION**

The High Lakes Fisheries Project was initiated as a cooperative program of the U.S. Forest Service and the Idaho Department of Fish and Game (IDFG) in 1986. Lewis Clark State College, Lewiston, Idaho, became a cooperating agency in 1994. The goal of the program is to develop baseline ecological data on high mountain lakes within the Clearwater River drainage of north central Idaho. During the period 1986 through 1994, 258 lakes were surveyed on the Nez Perce and the Clearwater National forests (Bahls 1990, Bahls 1992, Cochnauer and Phillips 1994). Of these, 190 lakes are on the Nez Perce National Forest and 68 on the Clearwater National Forest.

In 1995, the project was continued on the Clearwater National Forest as a partnership between the Clearwater National Forest, IDFG and Lewis Clark State College in Lewiston, Idaho. The Clearwater National Forest and IDFG provided partial funding for the project. Volunteer students from Lewis Clark State College conducted the field surveys and the zooplankton and invertebrate identification. This report presents the findings for 43 lakes surveyed in the Clearwater National Forest in 1995. All lakes were located in the Lochsa River drainage (Figure 1).

## **OBJECTIVES**

The objectives of the 1995 survey were to obtain, analyze, and summarize data to be used for:

1. Biological, physical, and chemical inventory of each lake surveyed.
2. Long-term monitoring.
3. Ecological effects of fish introductions.
4. Development of fish stocking rate guidelines for individual lakes.

## **METHODS**

The standardized high mountain lake survey methodology as described by Bahls (1991) was used to survey 43 mountain lakes located in the Lochsa River drainage from July 7 to September 11, 1995.

## **RESULTS AND DISCUSSION**

The biological, physical, and chemical inventories of each lake are documented in Cochnauer and Murphy 1995. Seventeen lakes were found to be fishless. Cutthroat trout *Oncorhynchus clarki*, rainbow trout *O. mykiss*, and brook trout *Salvelinus fontinalis* were the fish species observed. Abundant stunted brook trout populations were found in nine lakes, primarily in the Old Man Creek drainage. Gill net sampling captured 652 fish: 374 cutthroat trout, 271 brook trout, and 7 rainbow trout.

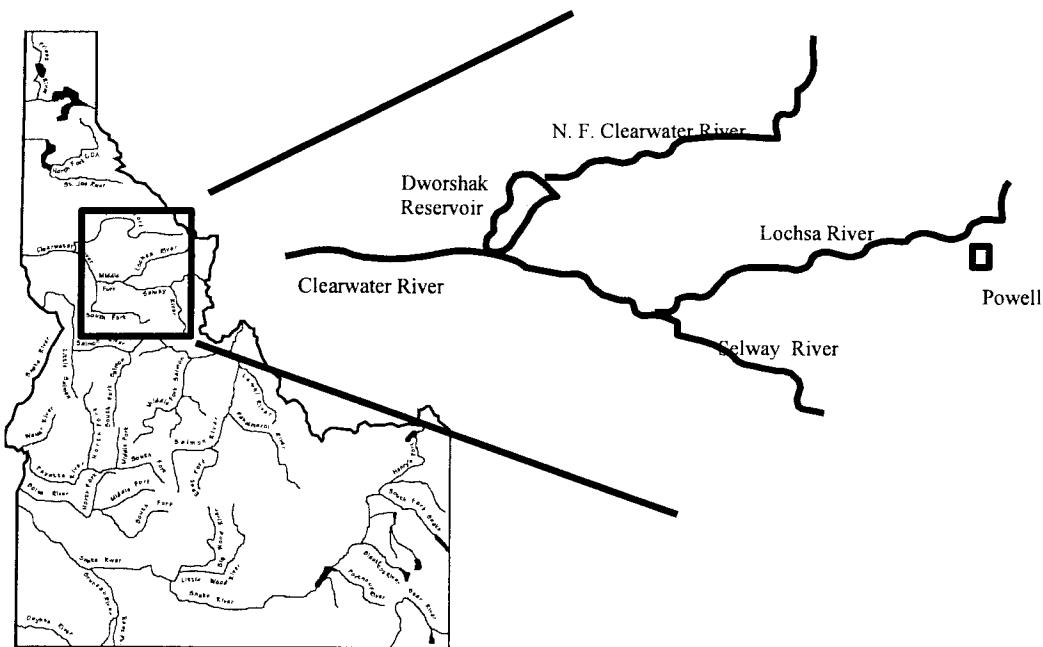


Figure 1. General location of mountain lakes surveyed in the Lochsa River drainage in the Clearwater National Forest.

The location description and proposed management direction based on information collected for each lake are presented in Table 1. Individual lake narratives as to management prescription are as follows:

#### **Beaver Lake**

Beaver Lake is a frequently visited lake with low numbers of fish present. The predominant fish are from the 1991 and 1994 stockings. It is questionable whether spawning occurs as no suitable spawning habitat was identified in tributary streams. Stocking of 500 cutthroat trout on a three-year rotation is recommended.

#### **Chimney Lake**

Chimney Lake supports an abundant population of brook trout. Stocking of this lake is not recommended.

#### **Colt Lake**

Colt Creek Lake has not been stocked in recent times and supports a very small population of cutthroat trout. A majority of the lake is less than 3m in depth. Stocking of this lake is not recommended.

#### **Coolwater Lake**

Coolwater Lake has been stocked with rainbow and cutthroat trout but now supports only a population of brook trout. Stocking of this lake is not recommended.

#### **Dishpan Lake**

Dishpan Lake supports an abundant population of stunted brook trout. Stocking of this lake is not recommended.

#### **East Colt Creek Lake**

East Colt Creek Lake supports a relatively healthy population of cutthroat trout with four age classes represented. The lake is presently on a three-year rotation of stocking with the last year being 1992. Because of the age structure of the population, natural reproduction must be occurring as both the inlet and outlet streams contain suitable spawning gravel. Stocking of this lake should be discontinued until a resurvey is completed in 1998.

Table 1. Location and proposed management direction for high mountain lakes surveyed in the Clearwater National Forest, 1995.

Lake Name	Legal Description			FSY	Class	PSY	Species	No. int.
	Town	Range	Sect					
Beaver Lake	37N	16E	10	1952	IVb	1997	CT-500	3
Chimney Lake	33N	9E	14	1939	IIa	None	---	---
Colt Lake	35N	14E	5	1966	IIb	None	---	---
Coolwater Lake	33N	8E	33	1965	IIa	None	---	---
Dishpan Lake	33N	10E	16	None	IIa	None	---	---
East Colt Lake	35N	14E	4	1971	V	Resurvey	1998	---
East Wind Lake	35N	14E	8	1951	IIa	None	---	---
Elizabeth Lake	33N	10E	16	1939	IIa	None	---	---
Fire Lake	33N	8E	34	1965	IVb	1997	CT-250	3
Flea Lake	33N	9E	14	None	Ib	None	---	---
Granite Lake	38N	16E	11	None	IIa	None	---	---
Grouse Lake	35N	14E	3	None	Ib	None	---	---
Hjort Lake	33N	10E	21	None	IIa	None	---	---
Hoodoo Lake	34N	14E	1	1952	IIa	None	---	---
Lily Lake	38N	16E	13	None	IIa	None	---	---
Lloyd Lake	33N	10E	21	None	IIa	None	---	---
Lower Grave Peak Lake	35N	14E	9	None	Ib	None	---	---
Lower Swamp Creek Lake	35N	14E	9	None	Ib	None	---	---
Middle Grave Peak Lake	35N	14E	8	None	Ib	None	---	---
Middle Walton Lake	36N	14E	27	1966	IIa	None	---	---
Middle Wind Lake	35N	14E	7	1951	IIa	None	---	---
Moore Lake	38N	16E	33	1952	V	Resurvey	1998	---
North Colt Creek Lake	36N	14E	32	None	Ib	None	---	---
North Hidden Creek Lake	35N	16E	22	None	Ib	None	---	---
North Hidden Peak Lake	35N	16E	16	None	Ib	None	---	---
North Walton Lake	36N	14E	21	1966	IIa	None	---	---
Northeast Beaver Lake	37N	16E	10	None	Ib	None	---	---
Northeast Colt Creek Lake	36N	14E	33	None	Ib	None	---	---
Northwest Wind Lake	35N	14E	7	None	Ib	None	---	---
Old Man Lake	33N	10E	17	1939	IIa	None	---	---

Table 1. Continued.

Lake Name	Legal Description						Species	No. int.
	Town	Range	Sect	FSY	Class	PSY		
Rock Lake	34N	10E	20	None	Ila	None	---	---
Rudd-Moore Lake	38N	16E	33	1952	IVb	1997	CT-500	3
Skookum Lake	38N	17E	18	None	Ila	None	---	---
South Walton Lake	36N	14E	28	None	Ib	None	---	---
South Hidden Lake	35N	16E	22	None	Ib	None	---	---
South Wind Lake	35N	14E	8	None	Ib	None	---	---
Wind Pond	35N	14E	7	None	Ib	None	---	---

FSY=First Year stocked; PSY=Proposed next stocking year; Int.=Proposed stocking interval; Class Ib=Fishless lake with no past stocking records; IIb=Stocked lake with questionable survival; Ila=Natural trout reproduction at moderate or higher level; IVb=Stockable lake; V=Further study needed to determine status of natural reproduction.  
 CT=cutthroat trout.

### **East Wind Lake**

East Wind Lake has a relatively healthy population of cutthroat trout supported by natural reproduction. Future stocking of this lake is not recommended.

### **Elizabeth Lake**

Elizabeth Lake supports an abundant population of brook trout and perhaps a smaller population of cutthroat trout. Stocking of this lake is not recommended.

### **Fire Lake**

Fire Lake is a small lake (1.1 ha) with over 100% less than 3 m in depth. The lake supports a small population of rainbow trout introduced by stocking. The lake is presently on the three-year stocking rotation and should continue as such with a change of fish species to cutthroat trout.

### **Flea Lake**

Flea Lake is a fishless lake of less than 3 m in depth. Stocking of Flea Lake is not recommended.

### **Granite Lake**

Granite Lake supports a relatively healthy population of cutthroat trout comprised of three age classes. The one outlet and three inlet streams all contain some suitable spawning gravel. Stocking of Granite Lake is not recommended.

### **Grouse Lake**

Grouse Lake is a fishless lake of relatively shallow configuration. Stocking of this lake is not recommended.

### **Hjort Lake**

Hjort Lake supports an abundant population of stunted brook trout. Stocking of this lake is not recommended.

### **Hoodoo Lake**

Hoodoo Lake supports healthy populations of both cutthroat and brook trout. Three age classes of both species were sampled. Limited spawning habitat for both species is found in the inlet stream. Stocking of Hoodoo Lake is not recommended.

### **Lily Lake**

Lily Lake supports a small population of cutthroat trout even though 100% of the lake is less than 3 m deep. Stocking of Lily Lake is not recommended.

### **Lloyd Lake**

Lloyd Lake supports an abundant population of brook trout comprised of five age classes. Stocking of this lake is not recommended.

### **Lower Grave Peak Lake**

Lower Grave Peak Lake is a fishless lake of 100% depth less than 3 m. Stocking of this lake is not recommended.

### **Lower Swamp Creek Lake**

Lower Swamp Creek Lake is a fishless lake of 100% depth less than 3 m. Stocking of this lake is not recommended.

### **Middle Grave Peak Lake**

Middle Grave Peak Lake is a fishless lake. Stocking of Middle Grave Peak Lake is not recommended.

### **Middle Walton Lake**

Middle Walton Lake supports an abundant population of cutthroat trout comprised of four age classes. Stocking of Middle Walton Lake is not recommended.

### **Middle Wind Lake**

Middle Wind Lake supports an abundant population of cutthroat trout comprised of three age classes. Stocking of this lake is not recommended.

### **Moore Lake**

Moore Lake supports an abundant population of cutthroat trout attributed to both natural reproduction and stocking. Future stocking of Moore Lake should be delayed until a resurvey of the fish population is conducted in 1998.

### **North Beaver Lake**

Northeast Beaver Lake is a fishless lake of shallow configuration (100% less than 3 m). Stocking of Northeast Beaver Lake is not recommended.

### **North Colt Creek Lake**

North Colt Creek Lake is a fishless lake and stocking is not recommended.

### **North Hidden Creek Lake**

North Hidden Creek Lake is a fishless lake and stocking is not recommended.

### **North Hidden Peak Lake**

North Hidden Peak Lake is a shallow, fishless lake. Stocking of this lake is not recommended.

### **North Walton Lake**

North Walton Lake supports an abundant, naturally reproducing population of cutthroat trout comprised of three age classes. Stocking of this lake is not recommended.

### **Northeast Beaver Lake**

Northeast Beaver Lake supports a cutthroat trout population comprised of naturally reproducing fish. Stocking of this lake is not recommended.

### **Northeast Colt Creek Lake**

Northeast Colt Creek Lake is a shallow, fishless lake and should not be stocked.

### **Northwest Wind Lake**

Northwest Wind Lake is a small, shallow fishless lake and should not be stocked.

### **Old Man Lake**

Old Man Lake is a relatively large lake (19 ha) supporting an abundant population of stunted brook trout. Stocking of this lake is not recommended.

### **Rock Lake**

Rock Lake is a shallow lake (100% less than 3 m in depth) supporting an abundant population of brook trout. Stocking of this lake is not recommended.

### **Rudd-Moore Lake**

Rudd-Moore Lake supports a cutthroat trout population primarily because of stocking in 1990 and 1991. Continued stocking of this lake in 1996 with 500 cutthroat trout on a three-year rotational basis is recommended.

### **Skookum Lake**

Skookum Lake supports an abundant population of naturally reproducing cutthroat trout. Stocking of this lake is not recommended.

### **South Hidden Creek Lake**

South Hidden Creek Lake is a shallow, fishless lake. Stocking of this lake is not recommended.

### **South Walton Lake**

South Walton Lake is a fishless lake and future stocking is not recommended.

### **South Wind Lake**

South Wind Lake is a shallow fishless lake and stocking is not recommended.

### **Swamp Lake**

Swamp Lake is a shallow, fishless lake and stocking is not recommended.

### **Upper Grave Peak Lake**

Upper Grave Peak Lake is a shallow, fishless lake and stocking is not recommended.

### **Upper Swamp Creek Lake**

Upper Swamp Creek Lake is a shallow, fishless lake and stocking is not recommended.

### **West Rudd-Moore Lake**

West Rudd-Moore Lake is a shallow, fishless lake and stocking is not recommended.

### **West Wind Lake**

West Wind Lake supports a small population of cutthroat trout comprised of three age classes. Natural reproduction is occurring but on a limited basis as no suitable habitat was documented in the inlet stream. Stocking of this lake is not recommended.

### **Wind Pond Lake**

Wind Pond Lake is a shallow, fishless lake and stocking is not recommended.

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## JOB PERFORMANCE REPORT

State of : Idaho

Program: Fisheries Management

Project II : Surveys and Inventories

Subproject I-B: Clearwater Region

Job: b

Title: Lowland Lakes Investigations

Contract Period: July 1, 1995 to June 30,1996

### ABSTRACT

Clearwater Region fisheries management personnel sampled Spring Valley Reservoir on May 19, 1995. Species composition was 66% largemouth bass *Micropterus salmoides* (N=705), 31% bluegill sunfish *Lepomis macrochirus* (N=333), 3% black crappie *Pomoxis nigromaculatus* (N=32), and <1% black bullhead *Ameiurus melas* (N=1). Additional electrofishing was done on May 16 and 18, targeting only largemouth bass and black crappie. Bass greater than 200 mm total length were tagged to provide a multiple census population estimate. Bass greater than 300 mm (legal size) were tagged with \$5.00 reward tags to estimate angler exploitation. Proportional Stock Density (PSD) for largemouth bass was 64. We estimated the population of largemouth bass 200 mm and larger at 224 fish. Of these, we estimated 131 were larger than 300 mm.

Standard survey in Elk Creek Reservoir on May 23 and 24, 1995, describes a fish community composed of six species of game fish and one species of nongame forage, redside shiner *Richardsonius balteatus*. Relative abundance of brook trout *Salvelinus fontinalis* has increased from 5% of the sample in 1992 to 28.4% in 1995. Relative abundance of largemouth bass and smallmouth bass *M. dolomieu* have remained similar, while redside shiners and black bullheads have declined since 1992.

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## OBJECTIVES

1. Conduct routine, impromptu creel surveys on lowland lakes and reservoirs to track fisheries composition and catch rate.
2. Conduct creel census on Dworshak Reservoir to determine angler use, catch, catch rate and catch composition.
3. Perform a standard lowland lake survey on Elk Creek Reservoir.
4. Evaluate fish community and stock structure of largemouth bass *Micropterus salmoides* in Spring Valley Reservoir.

## METHODS

We performed standard fish community surveys using Idaho Department of Fish and Game (IDFG) standard survey protocol (Appendix A).

We sampled fish in lowland lakes using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 16-foot johnboat. All electrofishing took place between 2000 hours and 0300 hours. We sampled trout *Oncorhynchus spp.* and kokanee *O. nerka kennerlyi* in lowland lakes using gill nets. We used standard floating experimental gill nets 150 feet long by 6 feet deep with six panels of different size mesh. Mesh sizes were 3/4", 1", 1-1/4", 1-1/2", 2", and 2-1/2". One or two nets were set and fished from late afternoon until early the next morning. Total net hours were recorded with the catch.

Age and growth estimates were made from scale analysis. Scales were dried and cleaned. Scale impressions were made in acetate slides using a heated press. Impressions were read using a microfiche reader. Where possible, five scales from each centimeter of the length distribution were read. The resulting age distribution was applied to the total sample length distribution to produce a population age frequency.

We used the Creel Census software program developed by IDFG to set up, calculate, and make expansion estimates on the Dworshak Reservoir creel census.

## RESULTS

### Creel Survey

Clearwater Region fishery management personnel, conservation officers, and volunteers checked 281 anglers at five area lowland lakes and ponds in 1995. These anglers fished 464 hours to catch 402 game fish, a catch rate of 0.87 fish/hr. The catch consisted of 91% rainbow trout *O. mykiss*, 6.5% bluegill sunfish *Lepomis macrochirus*, 2.0% largemouth bass, and 0.5% brook trout *Salvelinus fontinalis* (Table 1).

Table 1. Summary of creel survey findings in Clearwater Region lowland lakes and reservoirs, 1995.

Water/ Date	Number anglers	Total hours	Rainbow trout	Bluegill sunfish	Largemouth bass	Brook trout	Total	CPUE
<b>Elk Creek Reservoir</b>								
5/28	28	48	18	0	3	1	22	0.46
6/24	8	7.5	3	0	0	0	3	0.40
7/23	13	21	28	0	0	1	29	1.38
8/27	17	27	19	0	0	0	19	0.70
Subtotal	66	103.5	68	0	3	2	73	0.71
<b>Five Mile Pond</b>								
5/27	5	8	6	0	0	0	6	0.75
6/18	2	2	5	0	0	0	5	2.50
Subtotal	7	10	11	0	0	0	11	1.10
<b>Fenn Pond</b>								
2/9	N/A	5.5	6	0	0	0	6	0.87
<b>Moose Creek Reservoir</b>								
1/6	7	24	28	0	0	0	28	1.17
1/7	25	22	21	0	0	0	21	0.95
1/12	5	11	5	0	0	0	5	0.45
1/14	4	5	11	0	0	0	11	2.20
1/17	3	6.5	4	0	0	0	4	0.62
1/22	18	35	18	0	0	0	18	0.51
1/25	5	14	9	0	0	0	9	0.64
2/4	5	4	1	0	0	0	1	0.25
3/4	1	3	12	0	0	0	12	4.00
4/2	4	1.5	5	0	0	0	5	3.33
4/21	4	5	6	0	0	0	6	1.20
4/30	11	25.5	12	0	0	0	12	0.47
7/20	1	2	4	0	0	0	4	2.00
7/23	14	28	2	7	5	0	14	0.50
Subtotal	107	186.5	138	7	5	0	150	0.80
<b>Spring Valley Reservoir</b>								
1/4	10	17.5	20	0	0	0	20	1.14
1/12	7	11.5	4	0	0	0	4	0.35
1/14	1	.25	2	0	0	0	2	8.00
1/17	3	10	11	0	0	0	11	1.10
1/20	8	15.75	36	4	0	0	40	2.54
1/24	6	12	3	0	0	0	3	0.25
1/25	2	4	4	0	0	0	4	1.00
2/2	6	9.5	6	0	0	0	6	0.63
2/4	17	38.5	5	14	0	0	19	0.49
3/19	9	7.25	N/A	N/A	N/A	N/A	10	1.38
4/21	10	8	5	0	0	0	5	0.63
4/29	14	15.5	5	0	0	0	5	0.32
6/9	8	9	33	0	0	0	33	3.67
Subtotal	101	158.75	134	18	0	0	162	1.02
Total	281	464.25	357	25	8	2	402	0.87

## **Dworshak Reservoir**

### **Creel Census**

Clearwater Region fishery management personnel performed a creel survey on Dworshak Reservoir from April 30 to September 9, 1995. Census intervals were 14 days long, including 10 weekdays and 4 weekend days. We performed counts on two days of each day type within each interval. We sectioned the reservoir into three parts: 1) dam to Dent bridge, 2) Dent bridge to Grandad bridge, and 3) Grandad bridge to slack water. We used uniform sampling in each section.

From April 30 to September 9, 1995, we estimated anglers fished 95,728 hours to catch 167,830 fish in Dworshak Reservoir; a catch rate of 1.75 fish/hr. Approximately 75% of this effort was expended in section 1 during intervals 3 through 7 (Figure 1). Anglers kept approximately 94% (158,345) of the fish they caught. Kokanee dominated the harvest accounting for over 97% (154,309) of the fish ceeled (Table 2).

### **Smallmouth Bass**

We used standard electrofishing techniques to monitor smallmouth bass *M. dolomieu* in established transects in Dworshak Reservoir. The transects are:

1. Shoreline from Dent Bridge to camp across from Dent boat ramp.
2. Entire shoreline of Magnus Bay.
3. Entire shoreline of Swamp Creek Bay.

We sampled 165 smallmouth bass ranging in size from 70 to 410 mm. Proportional Stock Density (PSD) of the combined sample was 19 (Figure 2).

## **Standard Lake Surveys**

### **Elk Creek Reservoir**

Elk Creek Reservoir is located in Clearwater County near the town of Elk River. Potlatch Corporation originally constructed it as a log holding pond. The original dam washed out in 1937 and was reconstructed in 1950. The reservoir was chemically treated in October 1950 prior to refill behind the new dam. The dam and spillway were reconstructed most recently in 1987 by IDFG.

Elk Creek Reservoir is approximately 35 acres in size and holds 900 acre-feet of water at full pool. The land surrounding Elk Creek Reservoir is owned by IDFG. The Elk River Recreation District leases IDFG land and manages overnight camping and day use recreation on the reservoir.

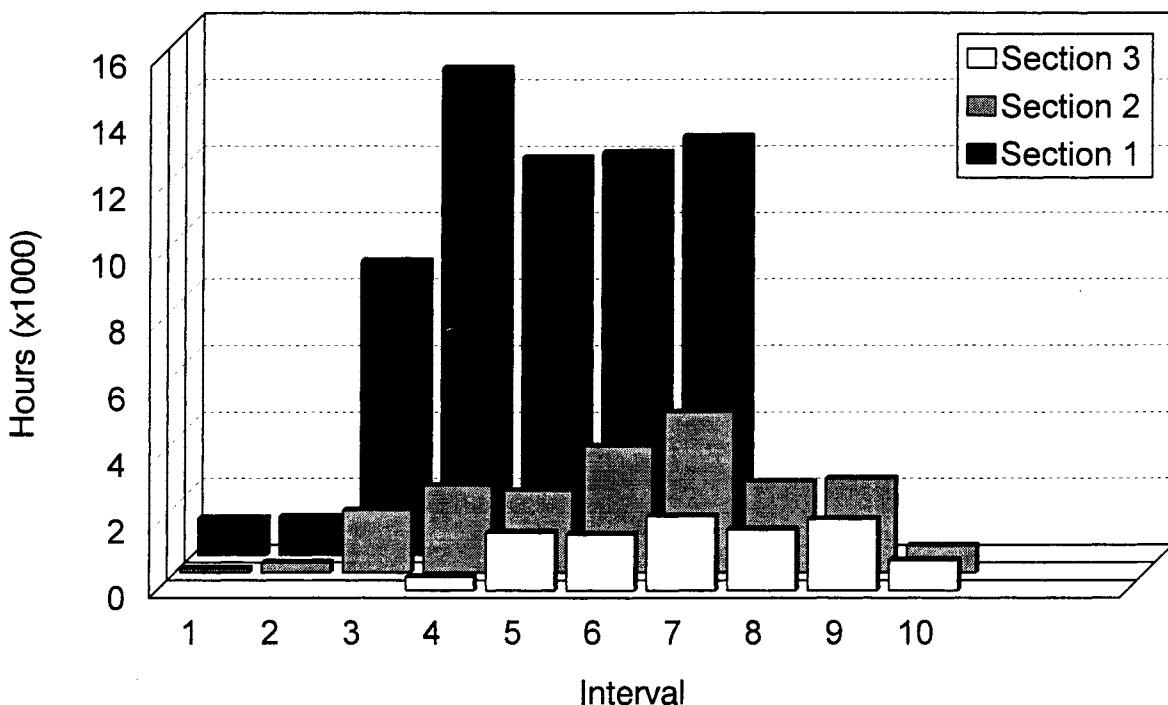


Figure 1.

Estimated hours of fishing effort on Dworshak Reservoir by section and interval, 1995. Intervals are 14 days long and begin April 15, 1995. Section 1 is from Dworshak Dam to Dent Bridge, section 2 is from Dent Bridge to Grandad Bridge and section 3 is from Grandad Bridge to the end of slack water.

Table 2. Catch results of creel census on Dworshak Reservoir by section and species, 1995.

Section	Caught	Kept	Released	Kokanee	Smallmouth bass	Rainbow trout	Cutthroat trout
1	104,928	103,228	1,705	101,141	858	1416	0
+/- (95%CI)	(31,948)	(31,946)	(192)	(31,462)	(718)	(818)	
2	37,598	35,501	2,975	34,765	447	368	14
+/- (95%CI)	(8,513)	(8,418)	(408)	(8,234)	(313)	(311)	(26)
Section 3	25,304	19,616	5,828	18,403	1,015	148	50
+/- (95%CI)	(4,685)	(4,801)	(475)	(4,716)	(875)	(107)	(92)
Total	167,830	158,345	10,328	154,309	2,320	1,932	64
+/- (95%CI)	(33,393)	(33,384)	(655)	(32,861)	(1,174)	(882)	(96)

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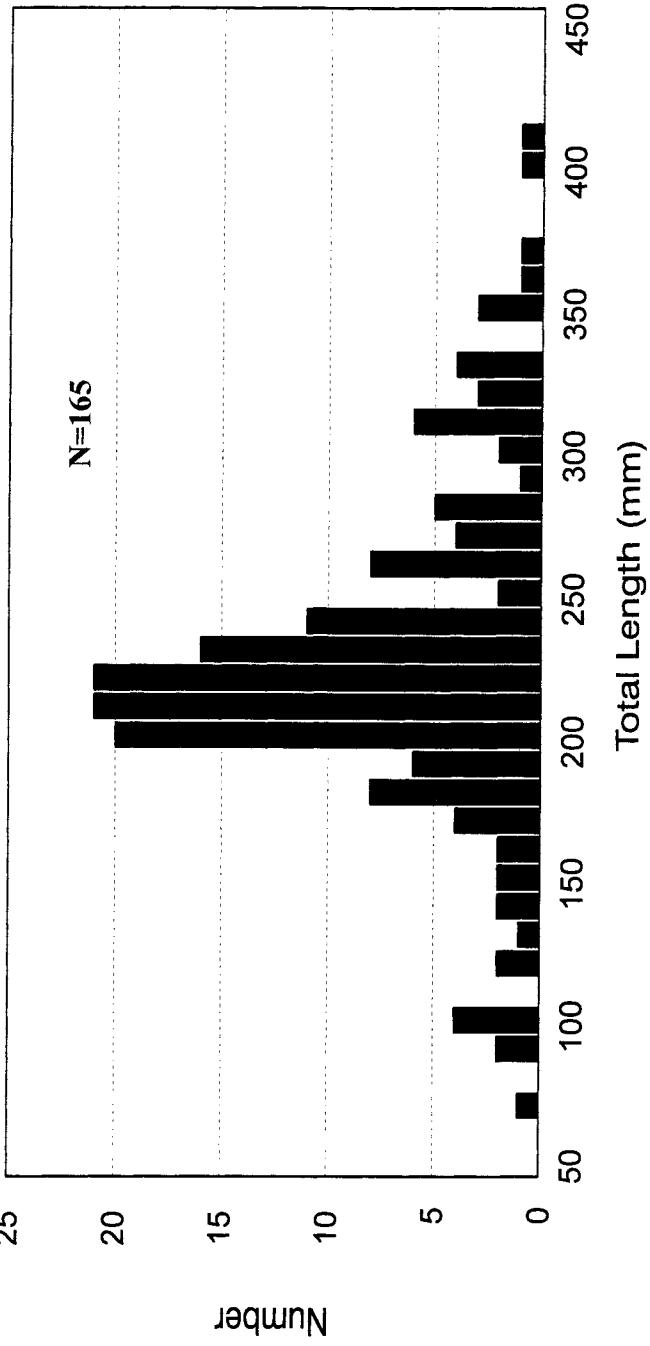


Figure 2.

Length frequency of smallmouth bass collected from established transects in Dworschak Reservoir, May 1995.

Elk Creek Reservoir is managed under IDFG statewide general angling regulations with the exceptions of Quality Bass (slot limit) and electric motors only. The reservoir is stocked annually by IDFG with approximately 25,000 catchable size trout.

Six species of game fish combined to produce 98% of the catch and 99.8% of the catch biomass. Largemouth bass were the most abundant game fish, accounting for 36% of the sample and 45.6% of the sample biomass. Redside shiner *Richardsonius balteatus* were the only nongame fish sampled in Elk Creek Reservoir (Table 3). Catch composition of largemouth and smallmouth bass has remained similar to standard survey results from 1992. However, relative abundance of brook trout has increased from 5% of the sample in 1992 to 28.4% in 1995. Redside shiner and black bullhead *Ameiurus melas* have declined in relative abundance from 21% and 42% to 2% and 18%, respectively (Figure 3).

Catch composition of largemouth bass shows that 7.8% of the stock size (200 mm) and larger fish are in the protected slot. PSD is 12.8, a decrease from 20 in 1992. We also sampled fish above the slot limit in 1995 (Table 4). Relative weights (Wr) of largemouth bass ranged from a low of 58 to a high of 127 and generally fell in the high 80s to low 90s (Table 4). This represents an across-the-board reduction in largemouth bass condition from the 1992 sample where relative weights were generally above 100 (Figure 4). This could likely correspond to the noted decline in relative abundance of redside shiners and black bullhead, the main forage species for largemouth bass in Elk Creek Reservoir.

Catch composition of brook trout shows fish range from 130 to 290 mm total length. Average size of brook trout was 209 mm while 21% of the sample were 250 mm and larger (Table 5). This corresponds to 196 mm and 12.2% respectively in 1992 sampling. These are positive changes, as the angling public has indicated that improving the brook trout fishery in Elk Creek Reservoir is important.

Catch composition of smallmouth bass indicates the structure of the population consists mostly of fish less than 240 mm long (Table 6). PSD is 5 and Wr ranges from the high 80's to low 90's. This is similar to findings in the 1992 sample.

Catch composition of rainbow trout is indicative of a hatchery-supplemented population. Total length of rainbow trout ranged from 160 to 350 mm (Table 7).

Black crappie *Pomoxis nigromaculatus* were documented in 1995 in Elk Creek Reservoir for the first time. These fish resulted from an illegal introduction. Size ranged from 90 to 100 mm (Table 8).

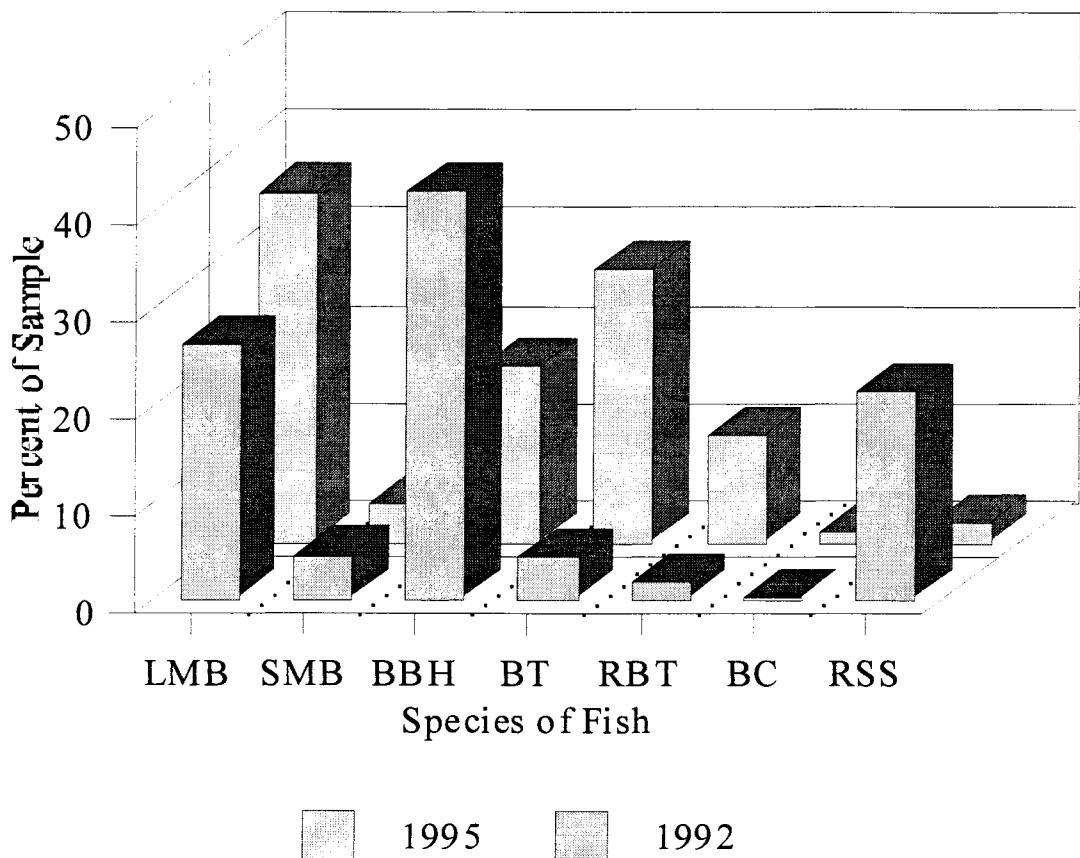
Catch composition of black bullhead show fish range from 170 to 310 mm, with 54% larger than 250 mm (Table 9). Average size of bullhead is 245 mm, an increase from approximately 190 mm in 1992. Some anglers are targeting bullhead as a result of the increase in size.

Catch composition of redside shiners is shown in Table 10.

Table 3. Elk Creek Reservoir standard survey findings of fish community characteristics, May 23, 1995.

Catch per unit of combined gear sampling effort*					
Species	(mm)	N	%	Weight (kg)	%
<u>Game Fish</u>					
Largemouth bass	60-420	168	36.0	27.54	45.6
Smallmouth bass	150-320	21	4.0	2.37	4.0
Black crappie	90-109	4	1.0	0.06	0.1
Black bullhead	170-319	84	18.0	8.95	14.8
Brook trout	130-290	134	28.0	10.72	17.7
Sub-total		465	98.0	60.27	17.7
<u>Non-Game Fish</u>					
Redside shiner	50-159	8	2.0	0.14	.2
Sub-total		8	2.0	0.14	.2
All Species Total		473	100.0	60.41	100.0

\* One hour electrofishing, one trap net night, and one combined floating and sinking gill net night. All length measurements are total length.



LMB = largemouth bass      SMB = smallmouth bass      BBH = black bullhead  
 BT = brook trout              RBT = rainbow trout      BC = black crappie  
 RSS = redside shiner

Figure 3. Fish community characteristics in Elk Creek Reservoir from 1992 and 1995 surveys.

Table 4. Catch composition of largemouth bass from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
60	1	0.6	2.0	68	1+
70	0	0.0	--	--	--
80	1	0.6	4.0	58	1+
90	0	0.0	--	--	--
100	1	0.6	14.00	103	1+
110	1	0.6	12.00	66	1+
120	0	0.0	--	--	--
130	0	0.0	--	--	--
140	0	0.0	--	--	--
150	1	0.6	42.00	89	2+
160	4	2.4	49.67	86	2+
170	5	3.0	60.00	86	2+
180	22	13.1	69.00	86	2+, 3+
190	23	13.7	82.20	84	2+, 3+
200	22	13.1	99.20	86	3+
210	13	7.7	113.80	85	3+
220	15	8.9	135.25	87	3+, 4+
230	16	9.5	163.40	92	4+
240	12	7.1	181.20	89	4+
250	7	4.2	204.00	88	4+
260	6	3.6	246.80	95	4+
270	1	0.6	N/A	N/A	N/A
280	2	1.2	310.00	94	5+
290	1	0.6	360.00	98	5+
300	1	0.6	360.00	88	5+
310	1	0.6	430.00	95	5+, 6+
320	2	1.2	462.50	92	5+, 6+
330	2	1.2	530.00	96	6+
340	2	1.2	615.00	102	6+
350	3	1.8	693.33	105	6+, 7+
360	1	0.6	610.00	84	7+
370	0	0.0	--	--	--
380	0	0.0	--	--	--
390	0	0.0	--	--	--
400	1	0.6	1000.00	99	8+
410	0	0.0	--	--	--
420	1	0.6	1500.00	127	8+

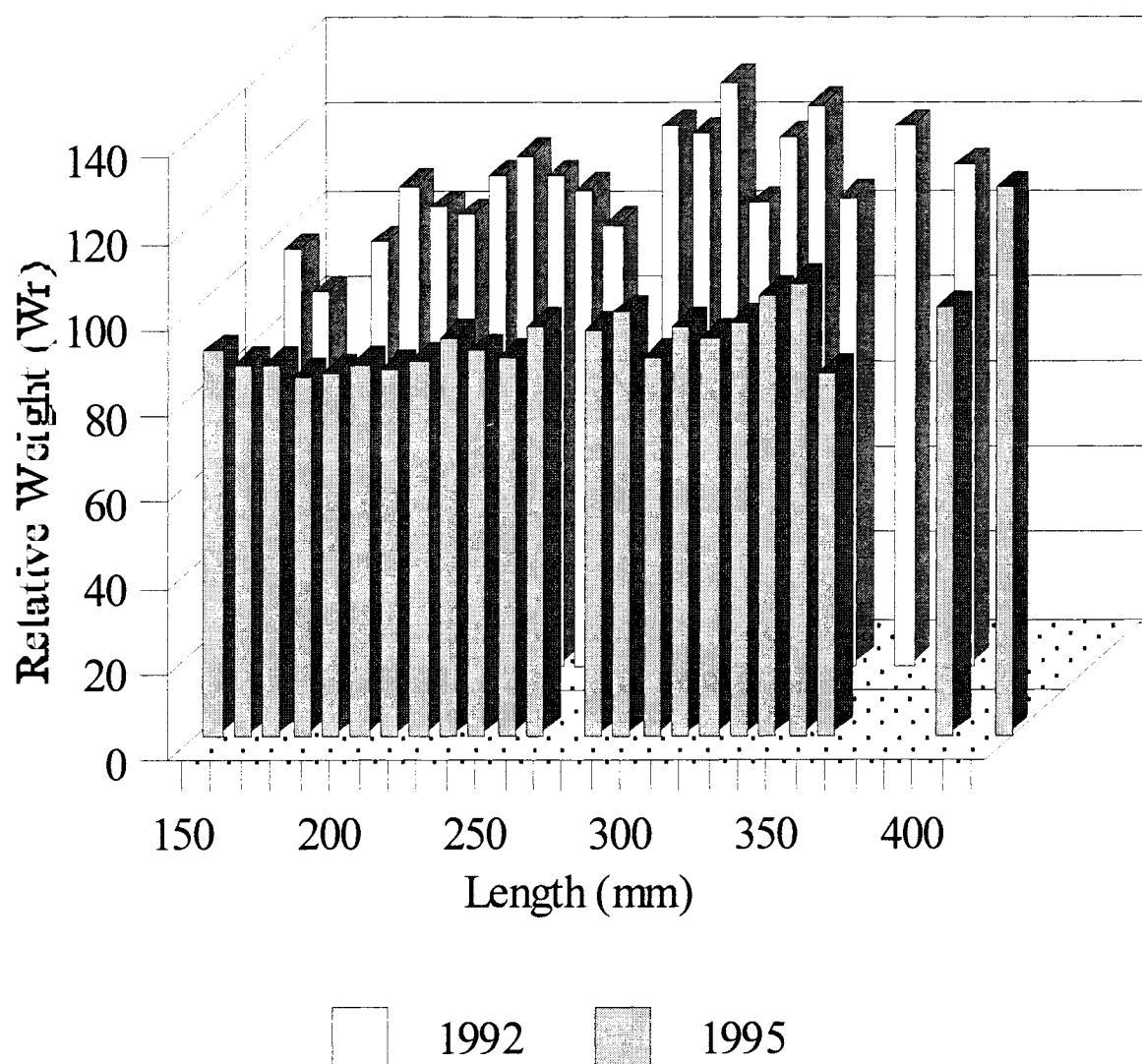


Figure 4. Comparison of relative weight of largemouth bass from Elk Creek Reservoir, 1992 and 1995.

Table 5. Catch composition of brook trout from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
130	1	0.7	38.00	159	2+
140	4	30.0	34.5	116	2+
150	6	4.5	3706	104	2+
160	6	4.5	44.00	101	2+
170	13	9.7	64.40	124	2+, 3+
180	9	6.7	70.80	115	2+, 3+
190	21	15.7	82.40	114	2+, 3+
200	7	5.2	94.80	113	3+
210	9	6.7	107.60	112	3+
220	9	6.7	107.60	112	3+
220	13	9.7	126.40	114	3+
240	9	6.7	146.00	103	3+, 4+
250	12	9.0	180.80	113	3+, 4+
260	4	3.0	192.50	107	4+
270	3	2.2	235.33	117	4+
280	4	3.0	237.67	106	4+
290	6	4.5	259.80	105	4+

Table 6. Catch composition of smallmouth bass from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
150	1	4.2	50.00	98	1+
160	0	0.0	--	--	--
170	3	12.5	64.00	86	1+
180	6	25.0	76.80	88	1+, 2+
190	3	12.5	99.67	97	2+
200	4	16.7	106.00	88	2+
210	1	4.2	124.00	89	2+, 3+
220	2	8.3	138.00	86	2+, 3+
230	2	8.3	166.00	90	3+
240	1	4.2	192.00	93	3+
250	0	0.0	--	--	--
260	0	0.0	--	--	--
270	0	0.0	--	--	--
280	0	0.0	--	--	--
290	0	0.30	--	--	--
300	0	0.0	--	--	--
310	0	0.0	--	--	--
320	1	4.2	405.00	83	5+

Table 7. Catch composition of rainbow trout from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
160	1	1.9	48.00	110	N/A
170	0	0.0	--	--	--
180	0	0.0	--	--	--
190	0	0.0	--	--	--
200	0	0.0	--	--	--
210	0	0.0	--	--	--
220	3	5.6	113.3	103	N/A
230	4	7.4	141.50	113	N/A
240	5	9.3	152.60	107	N/A
250	2	3.7	151.50	94	N/A
260	13	24.1	181.00	104	N/A
270	7	13.0	210.40	105	N/A
280	4	7.4	234.50	105	N/A
290	5	9.3	288.75	116	N/A
300	1	1.9	330.00	120	N/A
310	2	3.7	335.00	111	N/A
320	4	7.4	386.25	117	N/A
330	0	0.0	--	--	--
340	1	1.9	430.00	108	N/A
350	2	3.7	475.00	110	N/A

Table 8. Catch composition of black crappie from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (grams)	Relative wt.	Ages
70	0	0.0	--	--	--
80	0	0.0	--	--	--
90	2	50.0	10.00	101	1+
100	2	50.00	14.0	101	1+
110	0	0.0	--	--	--
120	0	0.0	--	--	--

Table 9. Catch composition of black bullhead from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
170	2	2.4	69.00	n/a	n/a
180	0	0.0	--	--	--
190	4	4.8	94.67	n/a	n/a
200	1	1.2	98.00	n/a	n/a
210	1	1.2	148.00	n/a	n/a
220	4	4.8	154.00	n/a	n/a
230	8	9.5	197.00	n/a	n/a
240	19	22.6	215.20	n/a	n/a
250	13	15.5	241.67	n/a	n/a
260	19	22.6	263.40	n/a	n/a
270	8	9.5	311.80	n/a	n/a
280	3	3.6	347.50	n/a	n/a
290	1	1.2	330.00	n/a	n/a
300	0	0.0	--	--	--
310	1	1.2	n/a	n/a	n/a

Table 10. Catch composition of redside shiner from Elk Creek Reservoir standard survey, May 23, 1995.

Length Range (mm)	No. per unit effort	Percent of sample	Mean weight (g)	Relative wt.	Ages
50	1	12.5	1.00	n/a	n/a
60	0	0.0	--	--	--
70	0	0.0	--	--	--
80	0	0.0	--	--	--
90	0	0.0	--	--	--
100	0	0.0	--	--	--
110	0	0.0	--	--	--
120	0	0.0	--	--	--
130	3	37.5	24.00	n/a	n/a
140	3	37.5	28.00	n/a	n/a
150	1	12.5	34.00	n/a	n/a

## **Spring Valley Reservoir**

Clearwater Region fisheries management personnel sampled Spring Valley Reservoir on May 19, 1995. Species composition was 66% largemouth bass ( $N=705$ ), 31% bluegill ( $N=333$ ), 3% black crappie ( $N=32$ ), and <1% black bullhead ( $N=1$ ). Additional electrofishing, targeting largemouth bass and black crappie, was done on May 16 and 18.

Bass greater than 200 mm total length were tagged to provide a multiple census population estimate. Bass greater than 300 mm (legal size) were tagged with \$5.00 reward tags to estimate angler exploitation.

Proportional Stock Density (PSD) for largemouth bass was 64. This represents the highest PSD value for largemouth bass in Spring Valley Reservoir since 1983 and the third consecutive year of PSD above 45 (Table 11).

We estimated the population of stock size (200 mm) and larger largemouth bass at 224 fish (Table 12). Of these, we estimated 131 were larger than 300 mm (Table 13).

Anglers returned 13 of 62 reward tags placed on legal size (>304 mm) largemouth bass. We estimated angler exploitation of largemouth bass at 21%.

Table 11. Length frequency of largemouth bass from Spring Valley Reservoir, 1983-1995.

Length mm	9/22/83	9/26/84	1988	6/18/91	5/22/92	5/21/93	5/25/94	5/16/95
50	2	0	3	0	9	16	0	1
60	2	0	0	0	8	55	0	0
70	1	0	0	0	8	89	0	0
80	1	0	2	1	5	44	8	0
90	8	0	8	0	1	6	31	2
100	28	0	23	0	0	1	45	33
110	40	5	31	2	0	0	35	137
120	54	4	19	1	2	16	26	122
130	37	4	18	1	6	33	10	109
140	21	18	9	9	11	61	11	38
150	13	29	2	27	15	48	24	31
160	6	33	2	39	9	31	37	42
170	2	14	5	30	19	15	28	49
180	0	12	6	19	15	7	17	26
190	1	9	6	12	3	7	14	9
200	4	4	5	20	6	3	4	1
210	4	0	4	75	11	5	6	2
220	0	0	2	110	19	3	5	2
230	0	0	0	55	29	5	6	2
240	2	1	0	10	26	0	5	1
250	1	0	1	9	22	1	1	2
260	1	0	0	4	14	0	2	0
270	2	0	0	0	9	0	1	2
280	1	0	0	0	3	0	1	0
290	0	0	0	0	2	1	0	4
300	0	0	0	0	3	0	1	5

Table 11. Continued.

Length mm	9/22/83	9/26/84	1988	6/18/91	5/22/92	5/21/93	5/25/94	5/16/95
310	0	1	0	0	0	2	1	8
320	0	0	0	0	2	1	3	3
330	0	0	0	0	0	3	1	5
340	0	0	0	0	3	3	2	1
350	0	0	0	0	0	4	2	0
360	0	0	0	0	2	5	1	0
370	0	0	0	0	0	1	2	0
380	0	0	0	0	0	0	1	0
390	0	0	0	1	0	2	4	0
400	0	0	0	0	0	0	4	3
410	0	0	0	0	0	0	3	0
420	0	0	0	0	0	0	4	1
430	0	0	0	0	0	0	0	1
440	0	0	0	0	0	0	0	0
450	0	0	0	0	0	0	0	1
460	0	0	0	1	1	0	0	0
470	0	0	0	1	0	0	0	0
480	0	0	0	0	1	0	0	0
490	0	0	0	0	0	0	0	0
500	1	0	0	0	0	0	0	0
Number	232	134	146	427	264	468	346	643
Ave length	129	159	129	203	199	123	161	143
PSD	6	17	0	1	8	54	48	64
%>200 mm	7	4	8	67	58	8	17	7
%>300 mm	0	1	0	1	5	4	8	4

Table 12.

Summary of marking and recaptures and population estimate worksheet for multiple census estimates of Spring Valley Reservoir largemouth bass greater than 200 mm, May 16, 18 and 19, 1995.

T	Number caught (c <sub>0</sub> )	Recap (R <sub>C</sub> )	Number marked	Marked at large (M <sub>C</sub> )	C <sub>c</sub> M <sub>c</sub>	M <sub>c</sub> R <sub>C</sub>	C <sub>c</sub> M <sub>c</sub>	R <sub>C</sub> <sup>2</sup> /CT <sub>c</sub>
1	44	0	44	0	0	0	0	0.00
2	39	11	28	44	1716	484	75,504	3.10
3	53	15	20	72	3816	1080	274,752	4.25
Total	136	26	92	116	5532	1564	350,256	7.35

N = 224 fish  
 95% CI = [7.5676 x 10<sup>3</sup> ≤ 1/N ≤ 1.3631 x 10<sup>3</sup>]  
 95% CI = [132 ≤ N ≤ 734]

$$s^2/N = 7.2095 \times 10^{-4}$$

Table 13.

Summary of marking and recaptures and population estimate worksheet for multiple census estimates of Spring Valley Reservoir largemouth bass greater than 300 mm, May 16, 18 and 19, 1995.

T	Number caught (c <sub>0</sub> )	Recap (R <sub>C</sub> )	Number marked	Marked at large (M <sub>C</sub> )	C <sub>c</sub> M <sub>c</sub>	M <sub>c</sub> R <sub>C</sub>	C <sub>c</sub> M <sub>c</sub>	R <sub>C</sub> <sup>2</sup> /CT <sub>c</sub>
1	26	0	26	0	0	0	0	0.00
2	22	6	16	26	572	156	14,872	1.64
3	28	8	20	42	1176	336	49,392	2.29
Total	76	14	62	68	1748	492	64,264	3.93

N = 131 fish  
 s = .2786 s 1/N = 1.0992 x 10<sup>-3</sup>  
 95% CI = [9.8542 x 10<sup>-3</sup> ≤ 1/N ≤ 5.4575 x 10<sup>-3</sup>]  
 95% CI = [101 ≤ N ≤ 183]

$$s^2 = .0776$$

## **APPENDIX**

**Appendix A. Fish community survey procedures and guidelines.**

**LOWLAND LAKES AND RESERVOIRS  
STANDARD FISH COMMUNITY SURVEY PROCEDURES, CORE DATA, AND  
REPORT GUIDELINES**

**I. Surveys will be conducted using the following gear:**

**A. Gill nets**

Floating and sinking monofilament nets, 150' x 6', with six panels composed of 3/4", 1", 1-1/4", 2", and 2-1/2" bar mesh. One floating and one sinking net combined fished overnight equals one unit of gill net effort.

**B. Trap Nets**

75' lead, 3' x 6' frame, crowfoot throats on first and third of five hoops, 3/4" bar mesh, treated black.  
One trap net fished overnight equals one unit of trap net effort.

**C. Electrofishing**

A pulsed D.C. electrofishing boat with boom-mounted electrodes. One hour of current-on electrofishing equals one unit of electrofishing effort.

**II. Surveys will be conducted using the following procedures:**

**A. Effort**

Due to the selectivity of individual gear types, a combination of gill netting, trap netting, and electrofishing effort will be used to characterize the fish community. One unit of effort for each of the gear types combined, equals one unit of a sampling effort. The following table provides for the minimum amount of sampling effort and survey time needed for various size waters:

Lake Size (acre)	*Units of Sampling Effort	Nights Needed
1-25	1	1
26-100	2	1
101-500	4	1-2
501-1000	6	2
**1000+	6+	2-3+

\*One unit of sampling effort includes a pair of floating and sinking gill nets and one trap net fished overnight and one hour of electrofishing.

\*\*Use best judgment on sampling effort needed to sample various habitat zones.

## JOB PERFORMANCE REPORT

State of: Idaho

Name: Fisheries Management

Project: Surveys and Inventories

Subproject: I-B: Clearwater Region

Job No.: c

Title: Rivers and Streams Investigations

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Clearwater Region fishery management personnel snorkeled 142 stream transects within the Clearwater, Salmon, and Snake River drainages. Chinook salmon *Oncorhynchus tshawytscha* juvenile numbers continued at low levels throughout the drainages sampled. Fourteen adult chinook salmon redds were counted in traditional spawning ground counts in the Lochsa and Selway rivers. One hundred and six hatchery origin rainbow/steelhead trout *O. mykiss* were collected from the three main rivers in the region. Diet analysis revealed fish in five of the stomachs. These fish were primarily juvenile crappie *Pomoxis spp.* with one fish unidentified. Management personnel captured and PIT-tagged 54 white sturgeon *Acipenser transmontanus* from the Snake River and two from the Salmon River. An angler creel census conducted on the North Fork Clearwater River above Dworshak Reservoir estimated anglers fished 64,542 hours to catch 28,457 fish of which 220 were harvested. Anglers expended an estimated 5,635 hours on the roaded section of Kelly Creek to catch and release 14,991 fish.

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## **OBJECTIVES**

1. Develop long-term fish population database on selected streams throughout the Clearwater Region.
2. PIT tag white sturgeon *Acipenser transmontanus* in the Snake River below Hells Canyon Dam and the Salmon River below Riggins.
3. Assess diet of hatchery rainbow trout *Oncorhynchus mykiss* and residualized hatchery steelhead trout *O. mykiss gairdneri* smolts in the Snake, Salmon and Clearwater River drainages.
4. Allocate hatchery rainbow trout in regional streams.
5. Collect miscellaneous creel census information from various streams throughout the region.

## **SALMONID POPULATION TREND MONITORING**

### **Methods**

We used standard snorkeling techniques to monitor fish densities in regional rivers and streams. Snorkeling was conducted in late summer when stream flows were low, clear and accessible. Small streams were snorkeled upstream with one or two observers depending on stream width. Larger streams and river corridors were snorkeled free-floating downstream with four to six observers depending on corridor width. Population status is presented as fish/100 m<sup>2</sup>.

We sampled rainbow trout and mountain whitefish *Prosopium williamsoni* in the Clearwater River using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Sampling took place during daylight hours to avoid safety hazards.

### **Results**

#### **Selway River Investigations**

Juvenile chinook salmon *O. tshawytscha* numbers remained low in the tributaries (Table 1) and mainstem river (Table 2). A total of 33 chinook salmon juveniles were observed in 18 tributary transects above Selway Falls, and 44 juvenile chinook salmon were counted in 6 tributary transects below Selway Falls. In 9 mainstem transects, 193 juvenile chinook salmon were observed. No adult chinook salmon were observed in the July and August sampling. Aerial chinook salmon spawning ground counts revealed 13 redds, mostly in the upper reaches of the river (Table 3).

Table 1. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling the Selway River drainage, 1995.

Stream	Date	Steelhead trout			Cutthroat trout			Chinook salmon		Bull trout
		Total	Age 0	Age 1	Age 2	Age >2	Total	<305 mm	>305 mm	
Bear Creek, at bridge	8/5	2.44	0.98	0.24	1.22	0	0.49	0.49	0	0.65
Bear Creek, upper	8/5	2.12	0	1.34	0.78	0	8.9	0.89	0	1.12
E.F. Moose Creek	8/7	3.80	0	1.90	1.90	0	2.07	0.69	1.38	0.17
Gedney Creek, #1	7/24	15.38	7.49	2.27	5.08	0.54	0	0	0	0.40
Gedney Creek, #2	7/24	19.25	6.90	6.90	5.45	0	0	0	0	0.27
Little Clearwater R., upper	8/3	2.87	0	1.91	0.96	0	0.19	0.19	0	0
Little Clearwater R., lower	8/3	4.13	0	3.81	0.32	0	0	0	0	0
Marten Creek	8/9	3.91	0.65	2.28	0.33	0.65	1.63	1.30	0.33	0
Meadow Creek, #1, Slims Camp	8/10	7.58	2.39	4.14	1.05	0	0.28	0.28	0	1.19
Meadow Creek, #2	8/10	4.07	1.55	2.24	0.28	0	0.55	0.55	0	0.82
Moose Creek, #1, at mouth	8/3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Moose Creek, #2, at E.F. confl.	8/7	1.29	0.65	0.32	0.32	0	0.10	0.05	0.05	0.51
N.F. Moose Creek	8/7	2.39	0.93	0.31	0.93	0.22	0.44	0.35	0.09	0.04
Otter Creek	8/10	0	0	0	0	0	15.88	15.88	0	0
Running Creek, lower	8/4	6.81	5.03	0.74	1.04	0	0.59	0.59	0	0
Running Creek, upper	8/4	2.03	0.49	0.57	0.73	0.24	0	0	0	0.30
Selway R. at Hell's Half	8/3	4.58	0.99	2.33	0.72	0.54	0.27	0.27	0	0.36
Selway R. at Little Clearwater.	8/3	1.57	0.42	0.63	0.42	0.10	0.63	0.63	0	0.94
Selway R. at Beaver Pt.	8/3	3.17	1.86	0.80	0.44	0.07	0.15	0.11	0.04	4.96
Deep Creek, lower, Cactus	8/3	3.74	0	3.24	0.50	0	1.99	1.99	0	0
Deep Creek, upper, Scimitar	8/3	4.98	0.36	3.91	0.71	0	2.84	2.84	0	0
Three Links Creek	8/9	13.95	0	8.21	5.47	0.27	1.37	1.10	0.27	0
White Cap Creek, lower	8/3	2.02	0.96	0.72	0.34	0	0.45	0.45	0	0
White Cap Creek, middle	8/3	1.46	0	0.94	0.51	0	0.30	0.15	0.15	0.51
White Cap Creek, upper	8/3	6.37	1.86	3.27	1.19	0.05	1.20	1.20	0	0.48

Table 2. Number of fish counted in snorkel transects (5 snorkelers) in the unroaded mainstem Selway River, 1992-1995.

Location	Year	Cutthroat trout			Steelhead trout			Chinook salmon	Mountain whitefish	Bull trout
		<305mm	>305mm	Age 0	Age 1	Age 2	Age >2			
At Bad Luck Creek	1992	30	14	0	0	0	0	0	0	0
	1993	14	12	9	6	1	0	0	40	0
	1994	10	7	0	0	0	0	20	23	0
	1995	12	4	0	3	0	0	0	68	0
At North Star Creek	1992	22	2	0	0	0	0	0	56	0
	1993	28	5	0	0	0	0	0	45	0
	1994	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1995	13	5	0	0	0	0	0	46	0
At Osprey Island	1992	8	8	0	2	0	0	0	32	0
	1993	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1994	15	5	0	6	3	0	0	56	0
	1995	24	8	0	10	4	0	0	59	0
At Big Bend	1993	13	7	0	0	0	0	0	32	0
	1994	9	2	0	4	0	0	4	31	0
	1995	ND	ND	ND	ND	ND	ND	ND	ND	ND
At Tango Creek	1992	15	26	0	16	9	0	14	50	0
	1993	28	1	3	32	2	0	0	26	0
	1994	28	8						0	0
	1995	29	3	0	9	2	1	0	35	0

Table 3. Chinook salmon spawning ground survey summary in the Selway River drainage, 1995.

Drainage	Reach	Type	Description	Date	Method	Redds	Fish	
							Live	Dead
White Cap Creek	WC-1	T	Mouth to Coopers Flat	9/12	Aerial	0	0	0
Bear Creek	WC-2	T	Mouth to Cub Creek	9/12	Aerial	2	0	0
Moose Creek	WC-3	T	Mouth to Cedar Creek	9/12	Aerial	4	0	0
Running Creek	WC-4	T	Mouth to two miles above Eagle Cr. and lower one mile of Eagle Cr.	9/12	Aerial	0	0	0
Selway	WC-5	T	Flat to Magruder RS	9/12	Aerial	0	0	0
Selway	WC-6	T	Magruder RS to Magruder Crossing	9/12	Aerial	0	0	0
Selway	WC-7	T	Magruder Crossing to Little Clearwater River	8/31 9/12	Ground Aerial	2 1	1 0	0
Selway	WC-8	T	Little Clearwater to White Cap Creek	9/12	Aerial	1	0	0
Selway	WC-9	T	White Cap Cr. to Bear Creek	9/2	Aerial	5	0	0
Selway ground total						2	0	0
Selway drainage aerial count total:						13	0	0

Two bull trout *Salvelinus confluentus* were observed during the snorkeling activities in July and August. One fish was observed in the mainstem Selway River near Beaver Point and the other was found in White Cap Creek (Table 1).

Historic snorkel comparisons are found in Appendix A.

Tables 4 through 9 depict historic relative densities of cutthroat trout *O. clarki*, steelhead trout, and mountain whitefish observed by snorkeling in mainstem transects.

### **Lochsa River**

Fish densities (per 100 m<sup>2</sup>) as determined by snorkeling 14 transects in the Lochsa River drainage are shown in Table 10. No chinook salmon juveniles were observed in the tributaries surveyed. One bull trout was observed.

Historic snorkeling comparisons are found in Appendix A.

Chinook salmon spawning ground counts revealed 13 redds in Crooked Fork, Brushy Fork, and White Sand creeks (Table 11).

### **Snake River**

No chinook salmon juveniles or bull trout were observed while snorkeling in two Snake River tributaries surveyed (Table 12). Historic snorkeling comparisons are found in Appendix A.

### **Salmon River**

Nine tributaries of the lower Salmon River were surveyed by snorkeling in 1995 (Table 13). Juvenile chinook salmon were found in only three streams: Crooked Creek, John Day Creek, and Sheep Creek. Bull trout were observed only in Bargamin Creek. Historic snorkeling information is found in Appendix A.

### **North Fork Clearwater River**

Fisheries management personnel snorkeled 14 streams in this drainage as a continuation of surveys initiated in 1993. Rainbow trout were the most abundant fish observed (Table 14). Bull trout were found only in Orogrande, Isabella, and Skull creeks.

Table 4.

Percent of cutthroat trout by 50.8 mm (2 in) size groups sampled in the Selway River by angling, 1975-1995.

Length (mm)	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1993	1994	1995
102 to 151	8.7	2.2	8.7	0.8	4.6	2.8	4.2	2.4	12.4	0.1	4.3	2.7	1.5	1.4
152 to 202	31.3	16.4	20.9	20.7	13.6	19.0	22.2	15.8	14.0	22.7	23.3	13.0	12.6	25.1
203 to 253	27.0	24.8	24.5	15.7	22.2	25.2	28.2	23.3	25.1	16.5	23.6	20.2	22.3	17.7
254 to 304	21.0	35.7	27.0	34.1	30.7	31.2	24.7	27.1	24.3	26.2	30.6	36.8	22.8	27.2
305 to 355	11.2	18.4	17.0	23.2	25.3	18.9	16.8	28.0	21.0	25.7	15.7	22.8	34.0	24.0
356 to 405	0.8	2.5	1.3	5.1	3.4	2.3	3.8	3.1	3.0	4.7	2.7	4.5	7.4	3.5
Over 405	0	0	0.6	0.4	0.2	0.6	0	0.3	0.2	0.5	0	0	0	<0.01
Number of cutthroat measured	233	238	229	470	352	549	429	322	506	816	301	377	215	283

Table 5. Comparison of cutthroat (CT) trout counted in snorkel transects (1 snorkeler) and cutthroat trout caught by angling in the Selway River between White Cap Creek and Race Creek, 1975-1995.

Year	Counted in snorkel transects		Caught by angling		
	Average no. CT counted/ transect	Percent CT >305 mm in transects	Total no. cutthroat measured	Average CT total length (mm)	Percent CT caught >305 mm
1995	11.2	3.2	28	254	28
1994	5.9	11	215	272	29
1992	5.4	28	301	251	18
1990	10.5	19	816	259	31
1988	17.1	22	506	249	24
1986	21.5	20	322	264	32
1984	18.3	23	429	249	21
1982	16.1	16	549	254	22
1980	17.0	14	352	264	29
1978	13.0	19	470	262	27
1977	15.4	20	229	241	19
1976	7.1	21	238	259	22
1975	5.7	13	233	239	12
1974	5.5	10	--	--	--
1973	4.4	18	--	--	--

<sup>1</sup>Extremely low flows

<sup>2</sup> Water too turbid from rain and fire debris to get accurate count in most transects. Number of transects = 8

Table 6. Percent of cutthroat trout over 305 mm (12 in.) counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1995.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995
White Cap Creek to Running Creek	9.5	16.7	11.8	22.2	22.6	16.2	13.2	8.9	15.9	21.3	24.5	29.6	6.7	6.7	0.0
Running Creek to Bear Creek	11.1	8.3	18.2	16.2	21.5	20.8	11.8	10.7	20.7	14.6	22.4	15.9	25.5	11.1	0.0
Bear Creek to Moose Creek	34.4	15.5	8.0	25.0	25.0	21.4	9.9	15.0	22.7	18.7	22.9	16.2	48.4	12.1	9.1
<u>Weighted means:</u>															
White Cap Creek to Moose Creek	18.9	12.7	13.0	20.6	21.8	22.3	11.5	12.0	20.6	17.8	23.2	15.6	32.9	10.8	0.8
Moose Creek to Halfway Creek	8.3	--	3.6	17.5	12.5	13.6	18.6	17.9	22.1	22.7	21.6	9.5	9.1	--	10.9
Halfway Creek to Three Links Creek	19.0	16.2	19.0	26.3	17.5	15.9	17.2	23.8	26.1	22.7	26.7	33.0	6.7	0.0	0.0
Three Links Creek to Jim's Creek	23.3	5.8	12.5	38.5	27.5	25.0	17.3	22.3	28.4	24.0	23.7	16.3	11.1	0.0	0.0
<u>Weighted means:</u>															
Moose Creek to Race Creek	17.3	8.0	13.0	21.3	18.9	19.4	17.6	19.9	29.7	21.9	21.0	19.6	18.2	0.0	7.1

<sup>1</sup> Water too turbid to get accurate count

<sup>2</sup> Fish not broken into length groups

Table 7. Average number of cutthroat trout counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1998.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995
White Cap Creek to Running Creek	4.2	3.4	6.8	7.2	10.8	7.4	13.2	11.2	11.0	15.2	13.3	6.8	4.8	7.5	13.0
Running Creek to Bear Creek	7.2	4.8	6.6	6.2	18.6	10.6	18.6	11.2	17.4	19.2	11.6	16.4	9.4	9.0	13.3
Bear Creek to Moose Creek	5.3	7.5	5.0	6.0	17.4	19.6	16.0	16.2	19.4	21.4	21.8	7.4	6.2	8.3	13.3
<u>Weighted means:</u>															
White Cap Creek to Moose Creek	5.6	5.2	6.1	6.5	15.4	12.5	16.2	12.8	16.3	18.8	15.7	10.4	6.9	8.3	13.2
Moose Creek to Halfway Creek	6.0	9.0	5.6	8.0	24.0	19.7	14.3	19.5	28.3	21.7	18.5	10.5	3.7	--	12.0
Halfway Creek to Three Links Creek	3.0	7.4	7.0	9.5	20.0	22.0	29.0	21.0	23.0	32.5	30.0	3.0	5.0	3.0	0.0
Three Links Creek to Jim's Creek	5.0	4.3	8.0	6.5	11.0	16.0	22.0	23.5	18.5	34.7	20.0	12.3	3.0	6.0	5.7
Jim's Creek to Race Creek	--	2.5	1.2	5.7	7.5	3.5	12.3	18.0	14.0	14.5	14.8	11.0	3.0	--	7.0
<u>Weighted means:</u>															
Moose Creek to Race Creek	3.6	5.9	5.3	7.4	15.3	13.8	18.0	21.1	20.5	24.3	18.7	9.9	3.7	4.5	8.8

<sup>1</sup> Water too turbid to get accurate count

**Table 8.** Average number of juvenile steelhead trout (<8 inches) counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1995.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995
White Cap Creek to Running Creek	1.2	1.1	5.0	4.0	0.8	3.6	5.0	7.4	10.5	5.5	3.8	4.0	3.7	3.8	9.3
Running Creek to Bear Creek	3.2	7.0	2.2	2.0	0.8	3.4	6.0	14.4	3.8	4.4	4.0	2.2	2.4	1.8	2.0
Bear Creek to Moose Creek	4.3	3.7	11.0	13.0	3.3	3.4	9.0	19.8	17.2	11.8	18.2	15.6	7.6	10.0	8.3
<u>Weighted means:</u>															
White Cap Creek to Moose Creek	2.7	2.6	7.7	5.7	1.9	2.6	5.9	11.1	14.3	7.1	9.1	8.4	4.7	5.2	6.6
Moose Creek to Halfway Creek	27.5	17.8	17.8	13.2	5.3	22.0	9.7	40.3	43.8	23.7	22.5	34.3	1.7	--	16.0
Halfway Creek to Three Links Creek	14.0	17.4	25.3	19.5	9.5	12.0	19.0	28.0	31.0	21.0	35.0	42.0	9.3	3.0	0.0
Three Links Creek to Jim's Creek	19.3	8.8	32.5	23.5	24.7	18.7	18.9	24.2	26.7	28.7	31.8	41.0	2.3	26.0	8.7
Jim's Creek to Race Creek	6.2	6.7	4.3	10.5	5.8	9.8	10.0	13.0	15.0	12.3	3.3	1.8	0.7	--	14.0
<u>Weighted means:</u>															
Moose Creek to Race Creek	12.8	19.2	13.8	12.0	14.9	13.5	29.6	28.1	21.6	23.2	22.5	15.8	3.5	14.5	13.0

<sup>1</sup> Water too turbid to get accurate count

Table 9. Average number of mountain whitefish counted in snorkel transects (1 snorkeler) in the Selway River (unroaded portion) from White Cap Creek to Race Creek, 1973-1995.

Stream section	1973	1974	1975	1976	1977	1978	1980	1982	1984	1986	1988	1990	1992	1994	1995
White Cap Creek to Running Creek	35.2	31.1	8.4	17.8	32.8	9.4	15.8	18.8	23.2	22.2	17.3	22.8	15.0	20.5	12.0
Running Creek to Bear Creek	39.2	36.4	15.0	6.5	77.8	17.4	17.6	21.2	37.4	30.6	24.2	36.8	45.4	55.5	33.3
Bear Creek to Moose Creek	31.1	34.2	11.8	9.0	51.3	16.6	19.0	30.2	44.2	31.6	29.6	10.2	13.8	20.0	15.3
<u>Weighted means:</u>															
White Cap Creek to Moose Creek	34.9	33.9	11.7	10.9	44.9	12.1	17.6	23.4	35.8	28.6	24.1	21.7	25.4	32.0	17.9
Moose Creek to Halfway Creek	48.8	31.5	32.4	16.6	69.5	40.3	32.0	43.8	46.2	41.0	44.7	47.3	12.0	--	42.8
Halfway Creek to Three Links Creek	17.7	31.4	27.0	16.0	65.0	67.0	27.0	47.0	60.0	38.5	70.0	12.0	10.0	19.0	0.0
Three Links Creek to Jim's Creek	23.8	19.0	41.0	19.5	49.7	46.0	38.3	59.0	50.0	50.7	35.0	27.3	9.0	5.0	11.0
Jim's Creek to Race Creek	5.2	16.8	18.7	2.0	41.0	20.5	20.0	21.0	32.5	19.7	22.3	8.8	9.0	--	5.0
<u>Weighted means:</u>															
Moose Creek to Race Creek	23.0	21.5	29.3	13.3	50.4	39.6	28.8	47.9	44.2	35.9	36.8	26.5	13.1	12.0	26.1

<sup>1</sup> Water too turbid to get accurate count

Table 10. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Lochsa River drainage, 1995.

Stream	Date	Total	Steelhead trout			Total	Cutthroat trout		Chinook salmon	Mountain whitefish	Bull trout
			Age 0	Age 1	Age >2		<305 mm	>305 mm			
Fire Creek, lower	8/15	2.76	0.00	1.93	0.55	0.28	2.76	2.76	0.00	0.00	0.00
Fire Creek, upper	8/15	6.82	0.34	3.75	2.05	0.68	0.68	0.68	0.00	0.00	0.00
Fish Creek, lower	7/10	15.25	2.52	7.56	5.04	0.13	0.13	0.13	0.00	0.00	0.13
Fish Creek, upper	7/10	26.34	4.31	12.92	8.78	0.33	0.17	0.17	0.00	0.00	0.50
Lochsa River at Papoose Creek	8/14	0.07	0.02	0.05	0.00	0.00	0.07	0.07	0.00	0.00	0.00
Lochsa River at Warm Springs	8/14	0.08	0.06	0.02	0.00	0.00	0.32	0.32	0.00	0.00	1.04
Lochsa River at Fish Creek	8/14	0.80	0.43	0.35	0.02	0.00	0.04	0.04	0.00	0.00	0.76
Lochsa River at Pete King Creek	8/14	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.10
Old Man Creek	8/15	4.27	0.00	1.82	12.43	0.00	3.03	3.03	0.00	0.00	1.06
Split Creek, lower	8/9	20.04	5.49	10.98	3.02	0.55	3.57	3.57	0.00	0.00	0.27
Split Creek, upper	8/9	22.89	11.70	7.88	3.31	0.00	0.00	0.00	0.00	0.00	0.25
Warm Springs Creek	8/12	1.62	0.81	0.46	0.35	0.00	2.88	1.96	0.92	0.00	0.23
Post Office Creek, lower	8/9	21.85	12.61	9.24	0.00	0.00	2.52	2.52	0.00	0.00	0.00
Post Office Creek, upper	8/9	25.00	16.67	7.81	0.52	0.00	1.56	1.56	0.00	0.00	0.00

Table 11. Chinook salmon redd counts on tributaries of the upper Lochsa River, 1995.

Drainage	Reach	Type <sup>1</sup>	Description	Date	Method	Redds		Fish	
						Live	Dead	Live	Dead
Crooked Fork	NC-9	NT	Mouth to Hopeful Creek	9/12	Aerial	7	7	7	0
	NC-10	T	Rock Creek to Cliff hole	8/29	Ground	1	1	1	0
Brushy Fork	NC-11	T	Low Gap Bridge to one mile downstream	9/9	Ground	0	0	0	0
	NC-12	T	Mouth to Spruce Creek	9/12	Aerial	4	0	0	1
White Sands	NC-13	NT	Mouth to Big Flat Creek	9/12	Aerial	1	0	0	0

<sup>1</sup>NT = non-traditional transect, T = traditional transect

Table 12. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Snake River drainage, 1995.

Stream	Date	Total	Steelhead trout			Total	Cutthroat trout		Chinook salmon	Mountain whitefish	Bull trout
			Age 0	Age 1	Age 2		<305 mm	>305 mm			
Granite Creek, lower	8/17	11.46	0.76	4.84	3.82	2.04	0.00	0.00	0.00	0	0
Granite Creek, middle	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Granite Creek, upper	8/17	17.21	0.00	7.97	6.37	2.87	0.00	0.00	0.00	0	0
Sheep Creek, lower	8/16	15.76	1.15	7.69	4.23	2.69	0.38	0.38	0.00	0	0
Sheep Creek, upper	8/16	9.54	1.19	5.17	2.78	0.40	0.00	0.00	0.00	0	0

Table 13. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Lower Salmon River drainage, 1995.

Stream	Date	Total	Steelhead trout			Cutthroat trout			Chinook salmon	Mountain whitefish	Bull trout
			Age 0	Age 1	Age 2	Total	<305 mm	>305 mm			
Bargamin Creek, lower	8/3	3.45	0.51	1.53	1.41	0.00	0.64	0.00	0.00	1.41	0.13
Bargamin Creek, upper	8/4	6.99	1.51	3.15	1.86	0.47	1.52	1.40	0.12	0.00	0.93
Crooked Creek, lower	8/3	10.75	6.96	1.97	0.76	1.06	0.76	0.76	0.00	0.00	0.76
Crooked Creek, upper	8/3	5.75	2.36	2.77	0.62	0.00	0.21	0.21	0.00	1.23	0.93
Jersey Creek	8/4	60.45	58.86	1.59	0.00	3.98	3.98	0.00	0.00	0.00	0.00
John Day Creek, lower	8/1	18.98	0.00	14.91	4.07	0.00	0.00	0.00	0.00	0.68	0.00
John Day Creek, upper	8/1	6.24	0.00	2.08	4.16	0.00	0.00	0.00	0.00	0.00	0.00
Race Creek	8/1	14.88	7.65	5.10	2.13	0.00	0.00	0.00	0.00	0.00	0.00
Sheep Creek, lower	8/3	4.84	0.23	3.57	0.92	0.12	0.58	0.58	0.00	0.12	1.96
Sheep Creek, upper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Skookumchuck Creek, lower	8/1	8.90	0.00	7.83	1.07	0.00	0.00	0.00	0.00	0.00	0.00
Skookumchuck Creek, upper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S.F. White Bird Creek, upper	9/18	14.13	0.00	13.76	0.37	0.00	0.00	0.00	0.00	0.00	0.00
White Bird Creek	9/18	10.59	9.54	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 14. Summary of snorkeling observations (fish/100 m<sup>2</sup>) in North Fork Clearwater River drainage, 1995.

Stream - Year	Area (m <sup>2</sup> )	Rainbow Trout			Cutthroat trout			Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	<305 mm	>305 mm				
Beaver Creek #1										
1994	165	0.61	3.03	1.82	0.61	0.00	0.00	0.00	0.00	0.00
1995	174	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beaver Creek #2										
1994	324	0.00	2.47	1.24	0.00	0.00	0.00	0.00	0.00	0.00
1995	236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beaver Dam Creek #1										
1994	67	0.00	1.49	0.00	0.00	1.490	0.00	0.00	0.00	0.00
1995	45	0.00	0.00	0.00	0.00	21.91	0.00	0.00	0.00	0.00
Beaver Dam Creek #2										
1994	47	0.00	0.00	0.00	0.00	8.17	0.00	0.00	0.00	0.00
1995	37	0.00	0.00	0.00	0.00			0.00	0.00	0.00
Collin's Creek #1										
1994	226	0.00	2.65	2.65	0.00	0.00	0.00	0.00	0.00	0.00
1995	265	9.43	2.64	1.89	0.00	0.00	0.00	0.00	0.00	0.00
Collin's Creek #2										
1994	186	0.00	7.52	2.14	0.00	0.00	0.00	0.00	0.00	0.00
1995	312	0.96	1.28	1.92	0.00	0.00	0.00	0.00	0.00	0.00
Collin's Creek #3										
1994	156	0.00	7.70	1.93	0.00	0.00	0.00	0.00	0.00	0.00
1995	236	6.36	2.54	0.42	0.00	0.00	0.00	0.00	0.00	0.00
French Creek #1										
1994	171	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	210	0.00	2.38	0.00	0.48	0.00	0.00	0.00	0.00	0.00
French Creek #2										
1994	79	0.00	0.00	3.78	0.00	0.00	0.00	0.00	0.00	0.00
1995	109	0.00	2.74	0.91	0.00	0.91	0.00	0.00	0.00	0.00

Table 14. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout			Cutthroat trout		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	<305 mm	>305 mm			
French Creek #3 1994	90	0.00	0.00	3.34	0.00	0.00	0.00	0.00	0.00
1995	79	0.00	2.53	1.26	0.00	3.79	0.00	0.00	0.00
Hemlock Creek #1 1994	145	0.00	3.46	1.38	0.00	0.00	0.00	0.00	0.00
1995	161	0.00	3.10	1.24	0.00	1.24	0.00	0.00	0.00
Hemlock Creek #2 1994	60	0.00	1.67	1.67	0.00	0.00	0.00	0.00	0.00
1995	206	0.00	0.97	0.49	0.00	4.37	0.00	0.00	0.00
Hemlock Creek #3 1994	141	0.00	8.53	2.13	0.71	0.00	0.71	0.00	0.00
1995	138	1.45	2.90	0.00	2.90	1.45	0.00	0.00	0.00
Hemlock Lake Creek 1993	107	0.00	8.39	4.66	0.00	0.93	0.00	1.86	0.00
1994	48	0.00	8.29	20.7	2.07	0.00	0.00	0.00	0.00
1995	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hemlock Creek #4 1993	331	0.60	1.81	0.91	0.31	0.00	0.00	0.00	0.00
1994	156	0	5.75	2.56	1.91	2.56	0.64	0.00	0.00
1995	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isabella Creek #1 1994	109	0.00	11.91	5.50	0.00	0.00	0.00	0.00	0.00
1995	131	1.53	3.05	0.00	0.00	0.00	0.76	0.00	0.00
Isabella Creek #2 1994	100	1.00	7.02	4.01	0.00	0.00	0.00	0.00	0.00
1995	90	5.56	2.22	0.00	2.22	0.00	0.00	0.00	0.00

Table 14. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout		Cutthroat trout		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	<305 mm	>305 mm		
Isabella Creek #3								
1994	40	0.00	12.64	0.00	0.00	0.00	0.00	0.00
1995	98	7.14	22.45	4.08	0.00	0.00	1.02	0.00
Isabella Creek #4								
1994	99	0.00	6.06	3.03	1.01	0.00	2.02	0.00
1995	202	1.98	43.56	0.00	0.00	0.00	0.00	0.00
Little Moose Creek #1								
1994	181	0.00	2.21	3.32	0.55	0.00	0.00	0.00
1995	280	0.00	0.71	1.43	0.71	0.00	0.00	0.00
Little Moose Creek #2								
1994	191	0.00	2.09	2.62	0.00	0.00	0.00	0.00
1995	124	0.00	4.00	0.80	0.00	2.40	0.00	0.00
Little Moose Creek #3								
1994	122	0.00	2.47	4.12	0.00	0.00	0.82	0.00
1995	125	0.00	0.00	0.00	0.00	8.79	0.00	0.00
Little Weitas Creek - L								
1993	180	3.34	3.34	0.00	0.00	0.56	0.00	0.00
1994	152	5.26	1.31	0.00	0.00	0.66	0.00	0.00
1995	193	1.03	1.04	1.04	0.00	0.00	0.00	0.00
Little Weitas Creek - U								
1993	205	0.49	5.37	0.00	1.47	1.47	0.00	0.00
1994	173	4.62	1.15	1.73	0.00	0.00	0.00	0.00
1995	191	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Middle Creek #1								
1994	169	0.00	12.99	5.90	0.00	3.54	0.00	0.00
1995	179	0.00	0.00	0.00	0.00	1.67	0.00	0.00
Middle Creek #2								

Table 14. Continued.

Stream – Year	Area (m <sup>2</sup> )	Rainbow Trout			Cutthroat trout		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	<305 mm	>305 mm			
1994	123	0.00	4.88	0.81	0.00	0.00	0.00	0.00	0.00
1995	120	0.00	1.68	0.00	0.00	5.85	0.00	0.00	0.00
Middle Creek #3									
1994	70	1.42	5.70	2.85	0.00	0.00	0.00	0.00	0.00
1995	30	0.00	10.12	0.00	0.00	16.86	0.00	0.00	0.00
Middle Creek – L									
1993	58	0.00	5.19	0.00	0.00	1.73	0.00	0.00	0.00
1994	83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	80	0.00	0.00	0.00	0.00	2.51	0.00	0.00	0.00
Middle Creek – U									
1994	78	2.56	2.56	0.00	0.00	0.00	0.00	0.00	0.00
1995	94	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orogrande Creek #1									
1994	111	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00
1995	99	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
Orogrande Creek #2									
1994	162	0.00	3.09	0.00	0.00	0.00	0.62	0.62	0.00
1995	73	2.75	2.75	0.00	1.38	0.00	0.00	0.00	0.00
Orogrande Creek #3									
1994	184	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00
1995	58	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00
Quartz Creek #1									
1994	142	1.41	2.11	0.00	0.00	0.00	0.00	0.00	0.00
1995	140	1.43	1.43	1.43	0.00	0.00	0.00	0.00	0.00
Quartz Creek #2									
1994	144	0.70	6.27	1.39	0.00	0.00	0.00	0.00	0.00
1995	136	2.21	4.41	0.00	0.00	0.00	0.00	0.00	0.00

Table 14. Continued.

Stream - Year	Area (m <sup>2</sup> )	Rainbow Trout		Cutthroat trout		Bull trout	Mountain whitefish	Brook trout
		Age 0	Age 1	Age 2	<305 mm			
Ruby Creek	74	1.36	1.36	0.00	0.00	0.00	0.00	0.00
	62	1.60	6.42	0.00	0.00	0.00	0.00	0.00
Skull Creek #1	277	0.36	5.78	2.88	0.00	0.36	0.00	0.00
	332	0.90	5.12	0.30	0.00	0.60	0.00	0.00
Skull Creek #2	346	1.16	2.60	2.30	0.00	0.00	0.00	0.00
	487	0.21	2.67	0.41	0.00	0.62	0.00	0.00
Skull Creek #3	426	0.94	3.05	2.82	0.00	0.70	0.94	0.70
	369	0.81	5.15	0.81	0.54	0.54	0.00	0.00
Skull Creek #4	576	0.35	0.69	1.91	0.35	0.00	1.04	0.00
	977	1.33	1.13	0.10	0.00	0.61	0.00	0.00
Weitas Creek - lower								
1993	1,380	0.00	0.07	0.00	0.00	0.00	0.00	0.00
	1,734	0.00	0.23	0.12	0.06	0.00	0.00	0.06
	1,895	0.00	0.00	0.26	0.16	0.00	0.11	0.69
Weitas - upper								
1993	634	0.00	1.26	0.16	0.95	0.47	0.00	0.00
	4423	0.00	0.00	0.00	0.00	0.00	5.42	0.00
	541	0.00	0.56	0.00	0.00	0.92	1.48	0.00

## **Clearwater River**

Four tributaries were snorkeled in the drainage. Steelhead trout were the most abundant species observed (Table 15).

Eighty-three wild rainbow trout were captured while electrofishing in the mainstem (Figure 1). These fish ranged in size from 100 to 240 mm total length. Most of the fish were captured during July and August.

Mountain whitefish were collected by electrofishing during April-August in the lower Clearwater River (Figure 2). These fish ranged in size from 100 to 490 mm total length and were captured primarily during the month of July.

## **South Fork Clearwater River**

Sixty-five chinook salmon juveniles were observed while snorkeling in 18 transects on five streams in the South Fork Clearwater River drainage (Table 16). Bull trout were observed in Johns and Moore creeks.

## **SMALLMOUTH BASS**

### **Methods**

We sampled smallmouth bass *Micropterus dolomieu* in the Snake and Salmon rivers using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Sampling took place during daylight hours to avoid safety hazards. Smallmouth bass were also captured using angling techniques. Length frequencies were constructed.

We duplicated 1991 through 1994 electrofishing efforts in an area temporarily dewatered during the 1992 drawdown test in Lower Granite Reservoir. We used the same techniques each year. The sampling area was on the Idaho shore of the slackwater reach between U.S. Highway 12 Bridge and the Lewiston Grain Growers elevators at Lewiston, Idaho.

### **Results**

## **Clearwater River**

Six hundred and eighty smallmouth bass were captured by electrofishing and measured on the lower Clearwater River during April through August (Figure 3). Over 60% of the bass sampled were equal to or less than 100 mm total length. Most (>50%) of the bass were captured in July.

Table 15. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling in the Lower Clearwater River drainage, 1995.

Stream	Date	Total	Steelhead trout			Cutthroat trout			Smallmouth bass	Mountain whitefish	Brook trout
			Age 0	Age 1	Age >2	Total	<305 mm	>305 mm			
Big Canyon Creek	6/28	12.86	8.18	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.47
E.F. Potlatch River, lower	6/28	1.58	0.00	1.58	0.0	0.0	0.0	0.0	0.0	0.0	0.00
E.F. Potlatch River, middle	6/28	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.19
E.F. Potlatch River, upper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mission Creek #1	7/6	2.77	0.00	2.77	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Mission Creek #2	7/6	2.87	0.48	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Potlatch River, lower	6/28	0.32	0.32	0.00	0.0	0.0	0.0	0.0	0.11	0.0	0.00
Potlatch River, upper	6/28	0.63	0.46	0.17	0.0	0.0	0.0	0.0	0.0	0.0	0.00

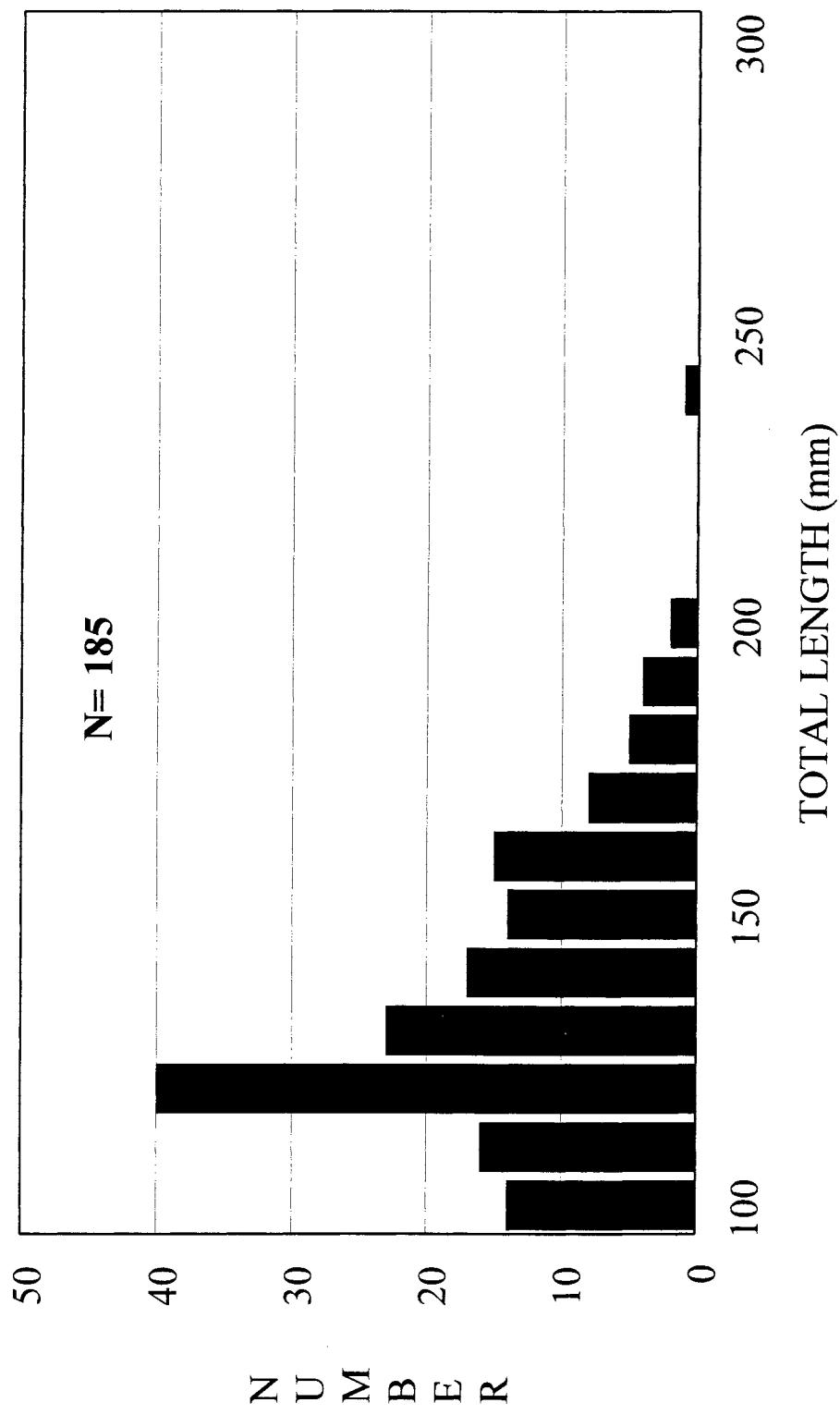


Figure 1. Length frequency of wild rainbow trout captured by electrofishing in the Clearwater River below Orofino, Idaho, 1995.

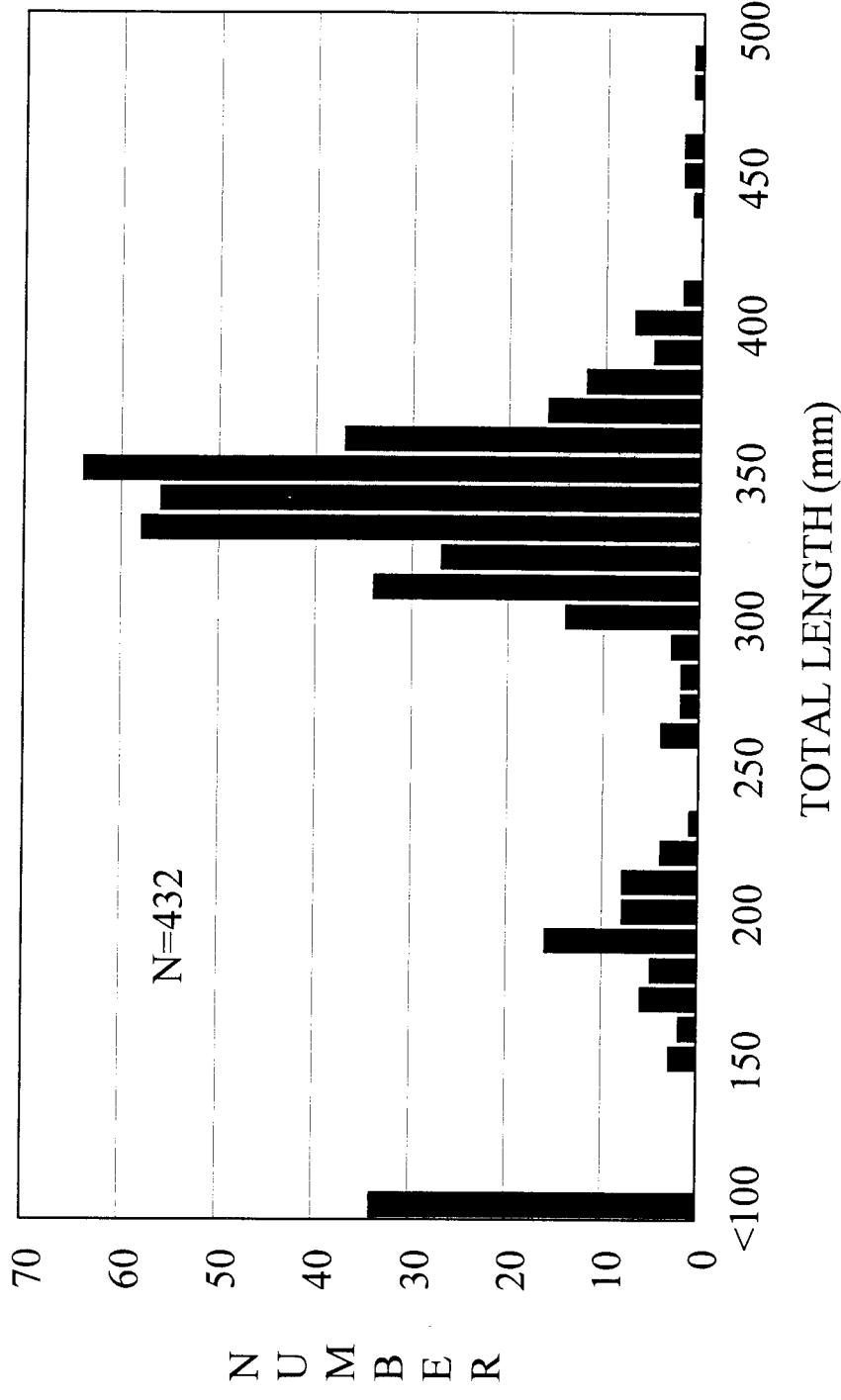


Figure 2. Length frequency of mountain whitefish captured by electrofishing in the Clearwater River below Orofino, Idaho, 1995.

Table 16. Summary of fish densities (per 100 m<sup>2</sup>) as determined by snorkeling parr monitoring sites in the South Fork Clearwater River drainage, 1995.

Stream	Date	Steelhead trout			Cutthroat trout			Chinook salmon			Mountain whitefish			Bull trout					
		Total	Age 0	Age 1	Age >2	Total	<305 mm	>305 mm	Chinook salmon	Mountain whitefish	Bull trout	Brook trout	Chinook salmon	Mountain whitefish	Bull trout	Brook trout			
American River, #1	7/15	1.97	0.00	1.41	0.56	0.00	1.13	1.16	0.00	0.28	0.28	0.00	0.00	0.28	0.00	0.28			
American River, #2	7/15	0.28	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00	0.00	0.00		
Johns Creek, lower #1	9/14	3.04	0.19	2.47	0.38	0.00	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Johns Creek, lower #2	9/14	1.61	0.00	1.35	0.00	0.26	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00		
Johns Creek, upper #3	7/29	1.56	0.52	0.26	0.78	0.00	1.56	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Johns Creek, upper #4	7/29	2.71	0.00	2.47	0.27	0.00	3.02	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00		
Meadow Creek, at meadow	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Meadow Creek, MP2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Moore Creek, lower	7/29	1.78	0.89	0.89	0.00	0.00	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Moore Creek, upper	7/29	3.96	0.00	0.00	3.08	0.88	2.64	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	
Red River, strata 1, control 1	7/17	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00	16.07	0.00	
Red River, strata 1, control 2	7/17	0.00	0.00	0.00	0.00	0.00	1.54	1.54	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00	6.76	0.00	
Red River, strata 2, control 2	7/17	0.22	0.00	0.11	0.11	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	
Red River, strata 2, treat 2	7/17	0.35	0.00	0.23	0.12	0.00	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.81	0.00	
Red River, strata 4, control 2	7/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.00	0.11	0.00	
Red River, strata 4, treat 2	7/16	0.68	0.00	0.17	0.51	0.00	0.00	0.00	0.00	0.00	5.13	1.54	0.00	0.00	0.00	0.00	0.00	0.34	0.00
Red River, strata 5, control 2	7/14	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Red River, strata 5, treat 2	7/14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	0.00	0.00	0.00
Ten Mile Creek, lower	8/31	4.12	0.21	3.17	0.74	0.00	0.32	0.32	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ten Mile Creek, upper	8/31	2.58	0.00	1.55	1.03	0.00	0.52	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

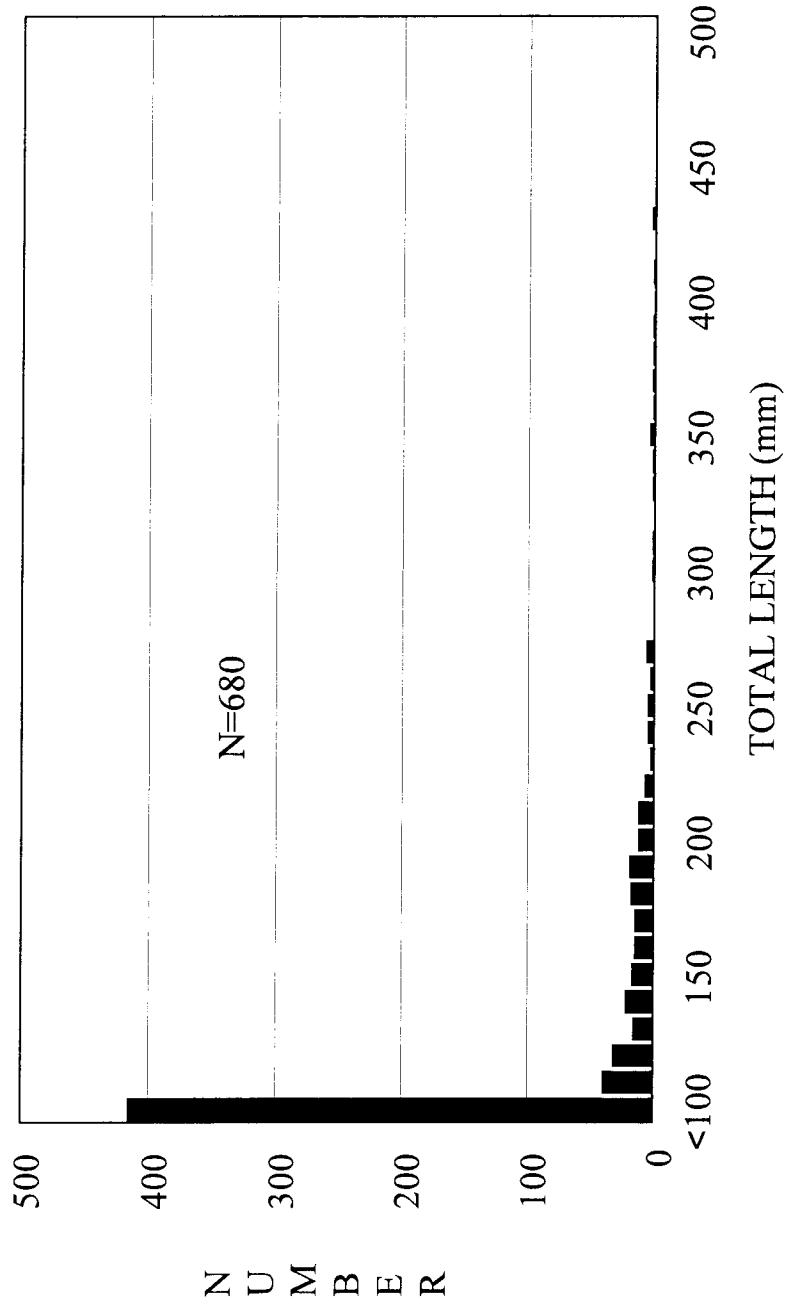


Figure 3. Length frequency of smallmouth bass captured by electrofishing in the Clearwater River below Orofino, Idaho, 1995.

### **Snake River**

Two sections of the Snake River were electrofished, one between the Interstate and Southway bridges and the other above Pittsburg Landing. Data for smallmouth bass collected in the lower transect are used to compare with previous years' information from the same section (Figure 4). The 244 smallmouth bass collected in 1995 was the highest sample size to date.

Smallmouth bass collected above Pittsburg Landing by electrofishing and angling in June 1995 are recorded in Figure 5. These fish ranged in size from 170 to 360 mm total length.

### **Salmon River**

Smallmouth bass were collected by angling and electrofishing in the lower Salmon River in late summer, 1995. One hundred and seventy four fish were collected and measured (Figure 6). As in previous years most of these fish were over 240 mm total length.

## **WHITE STURGEON**

### **Methods**

We sampled white sturgeon with traditional hook-and-line methods in the Snake and Salmon rivers. Passive integrated transponder (PIT) tags were inserted in the left side of the fish, just below the base of the dorsal fin. Sturgeon were inspected for previous marks, tags and hook scars.

### **Results**

#### **Snake River**

During the 1995 field season, fishery management personnel and volunteers captured and PIT-tagged 54 white sturgeon on the Snake River between Lewiston and Hells Canyon Dam (Table 17). In addition, another 15 white sturgeon were captured which had previously been PIT-tagged (Table 18).

#### **Salmon River**

Two white sturgeon were captured in the lower river below White Bird, and these fish were PIT-tagged (Table 19).

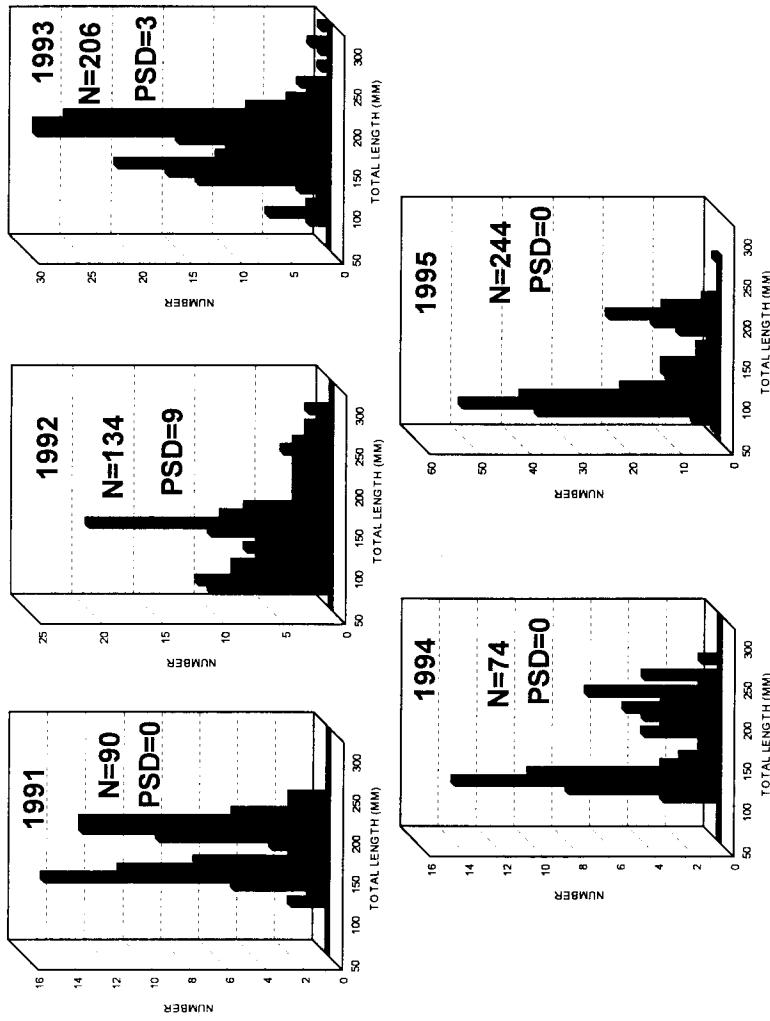


Figure 4. Comparison of length frequency of smallmouth bass collected by electrofishing the same stream length on the Snake River at Lewiston, Idaho, 1991-1995.

Figure 4.

25

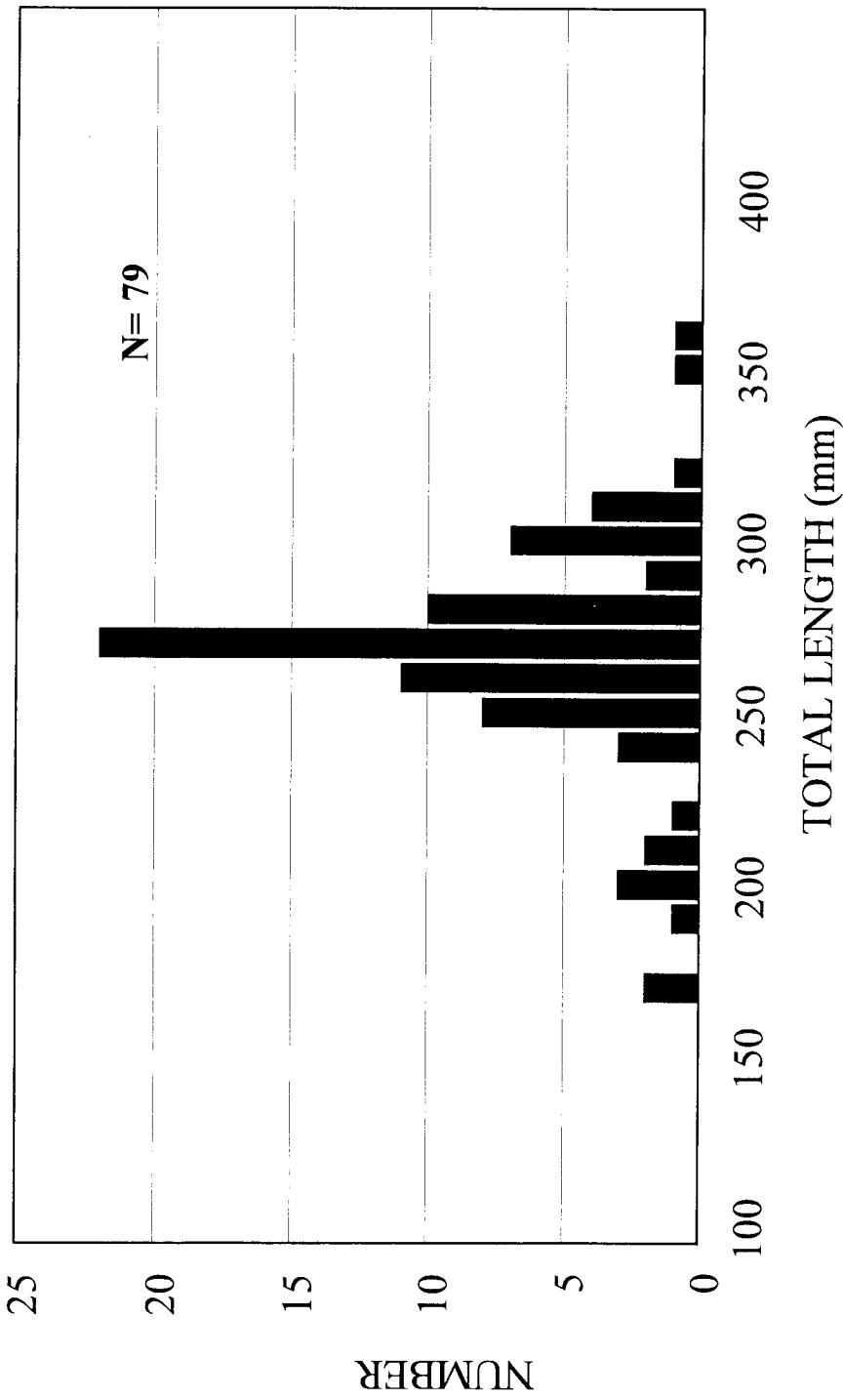


Figure 5.

Length frequency of smallmouth bass collected by angling in the Hells Canyon section of the Snake River, Idaho, 1995.

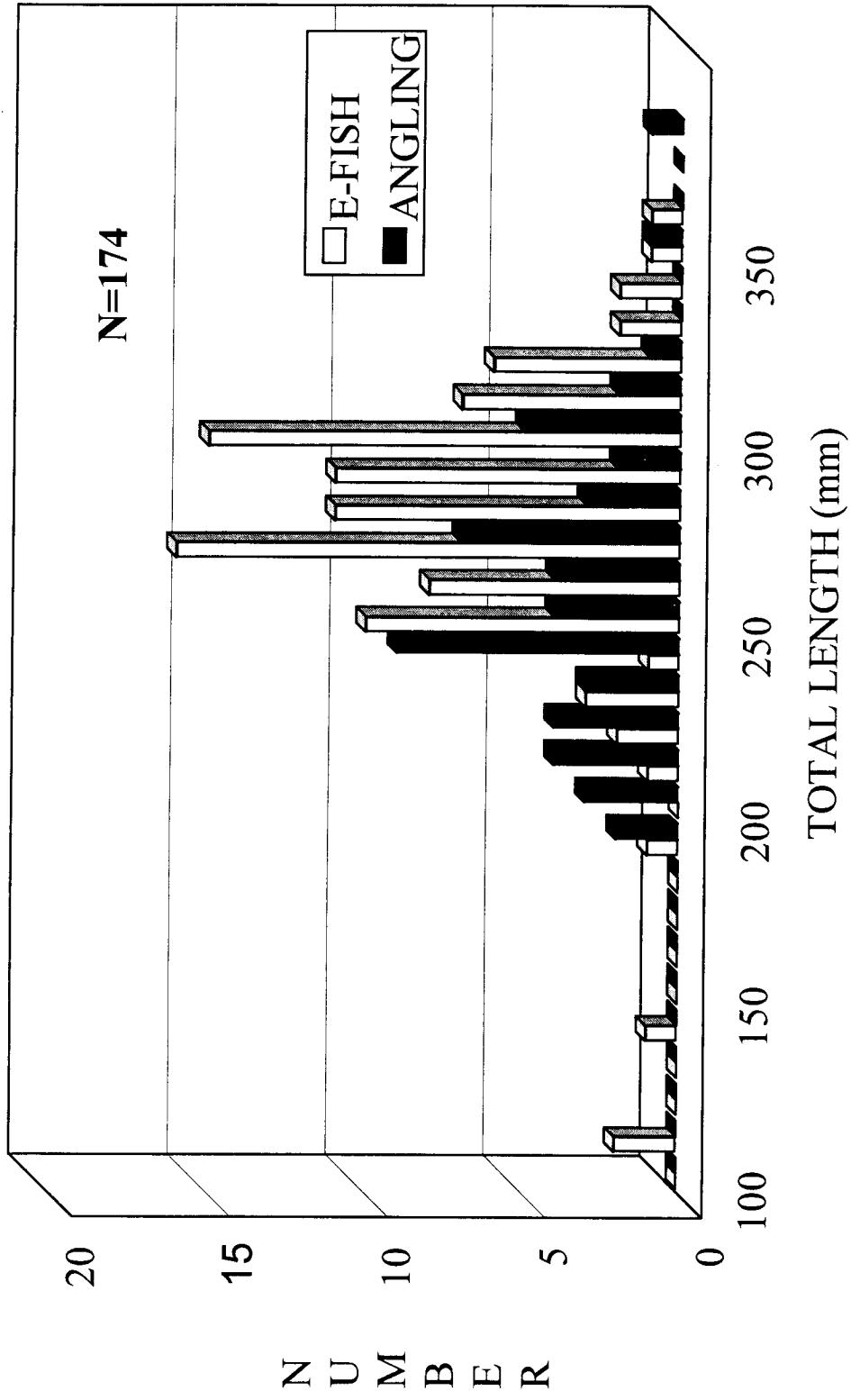


Figure 6. Length frequency of smallmouth bass collected by electrofishing and angling in the Salmon River below Riggins, Idaho, 1995.

Table 17. White sturgeon captured and PIT-tagged in the Salmon and Snake rivers, 1995.

PIT tag no.	Capture location (rkm)	Total length (cm)	Date capture
7F7B03525S	285	84	3/12
7F7D0A2803	285	158	4/2
7F7D0E1D01	341	63.5	7/23
7F7D0E2171	336	173	6/30
7F7D0E266D	285	77	4/28
7F7D0E2B77	288	192	10/4
7F7D0E2E50	322	204	4/29
7F7D0E2E55	239	110	6/19
7F7D0E2E57	327	76	7/16
7F7D0E2F19	336	76	6/30
7F7D0E303D	285	79	4/6
7F7D0E3050	305	242	11/10
7F7D0E3101	288	95	3/12
7F7D0E315A	238	71	6/20
7F7D0E3163	285	88	4/28
7F7D0E3167	299	68	9/9
7F7D0E316C	341	68	7/23
7F7D0E3241	288	82	4/2
7F7D0E3279	288	194	4/2
7F7D0E327C	358	84	6/22
7F7D0E330A	220	175	6/22
7F7D0E3352	288	147	10/20
7F7D0E335S	285	88	4/28
7F7D0E3425	239	207	6/17
7F7D0E363A	285	85	4/28
7F7D0E385C	327	74	7/16
7F7D0E3E69	327	89	7/22
7F7D0E-421	285	91	4/2
7F7D0F1F4B	266	81	3/12
7F7D0F2363	285	127	7/23
7F7D0F2517	239	208	6/19
7F7D0F2645	285	288	7/16
7F7D0F2646	238	217	6/20
7F7D0F267B	285	76	4/28
7F7D0F267E	288	123	3/2
7F7D0F284E	228	69	4/15
7F7D0F2979	285	160	4/2
7F7D0F2A42	285	92	9/9
7F7D0F2A46	299	150	9/9
7F7D0F2A48	327	135	7/22
7F7D0F2B6D	266	87	10/12
7F7D0F2C0D	220	228	4/15
7F7D0F2C1D	238	87	6/20
7F7D0F2D3F	327	81	7/22
7F7D0F3173	238	262	6/20
7F7D0F337F	336	233	5/7
7F7D0F3460	285	80	4/2
7F7D0F3B02	223	225	6/21
7F7D0F3B62	322	91	6/20
7F7D0F3C07	285	84	4/6
7F7D0F3C0A	198	69	7/22
7F7D0F3C40	285	89	4/28
7F7D124240	280	94	2/20
7F7D38795C	285	162	3/12

Table 18. Recaptures of white sturgeon with passive integrated transponder (PIT) tags in the Snake River below Hells Canyon Dam, 1995.

PIT tag number	Date	Total length (cm)	Length increase (cm)	River km captured	Km moved	Days at large
7F7F762267	4/2	157	UNK	285	UNK	UNK
7F7D0D7660	4/2	182	7	285	0	345
7F7D0E3101	4/2	92	0	285	3	21
7F7D07076D	3/12	160	0	288	0	236
7F7F425C58	4/5	243	12	305	3	358
7F7D0F2E0B	4/5	239	UNK	UNK	UNK	UNK
7F7D0F267E	4/5	127	4	288	0	34
7F7D0D7E32	4/16	84	3	296	3	232
7F7D045517	4/15	164	0	336	0	291
7F7D0E5B66	5/7	108	UNK	336	UNK	UNK
7F7D0F337F	6/30	230	0	336	0	54
7F7D0E5B66	6/30	104	0	336	0	367
7F7D100F20	6/30	103	2	322	0	279
7F7D0D7070	7/23	70	0	341	2	345
7F7D0D651F	7/23	136	UNK	336	2	445

Table 19. List of white sturgeon captured and tagged with passive integrated transponders (PIT) in the Salmon River, Idaho, 1995.

PIT TAG NO.	Date	rkm	Total length (cm)	Fork length (cm)
7F7D053002	8/10/95	20.6	221	195
7F7D0F3165	8/22/95	32.5	160	142

## SALMONID SAMPLING AND DIET ANALYSIS

### Methods

As in 1992 through 1994, we sampled residualized hatchery steelhead trout smolts and wild rainbow trout in the Snake, Salmon, and Clearwater rivers using pulsed D.C. current from a portable generator and a Coffelt VVP-2E pulsator. Booms and electrodes were mounted on a 5.5 m aluminum boat. Steelhead smolts were also collected using traditional hook-and-line methods.

All trout were measured for length. Residualized hatchery steelhead trout smolts were sacrificed and their stomachs dissected for diet analysis. Wild rainbow trout were released unharmed. Hatchery steelhead trout juveniles were identified by a missing adipose fin.

### Results

#### **Clearwater River**

The Clearwater River below Orofino (rkm 65) was sampled by electrofishing on July 28 (Table 20). Twenty-seven trout were collected. Total length of fish sampled ranged from 170 mm to 330 mm. Twenty-six stomachs from hatchery origin trout were examined by dissection. Diet consisted of aquatic and terrestrial insects and green algae. No fish were found in the stomachs of any fish sampled.

#### **Salmon River**

The Salmon River below Twin Bridges (rkm 99.2) was sampled by electrofishing on September 21, 26, 28 and 29. Angling for trout occurred during August 20-23. Sixty-three rainbow trout were collected (Table 21). All but 12 fish in the sample resulted from hatchery stocking. Total length of fish collected ranged from 190 to 480 mm (Table 21).

Fifty-one stomachs from hatchery origin fish were examined by dissection. Diet consisted of aquatic and terrestrial insects and green algae.

#### **Snake River**

We sampled the Snake River from Hells Canyon Dam to the Salmon River June 18-21. We collected 35 residualized hatchery steelhead smolts (Figure 7). We examined the stomachs of all 35 fish by dissection. Diet consisted almost exclusively of aquatic insects (adult caddis flies). Five fish had juvenile crappie *Pomoxis* spp. or perch *Perca flavescens* in their stomachs.

Table 20. Length frequency of rainbow trout collected by angling in the Clearwater River from river kilometer 65.0 to the mouth, 1995.

Length (mm)	Residualized steelhead adipose clip r&r	Domestic kamloops LV clip r&r	Spokane rainbow RV clip r&r	Hatchery rainbow (no mark) r&r	Natural rainbow r&r	Total
170	1	0	0	0	0	1
180	0	0	0	0	0	0
190	4	0	0	0	0	4
200	1	0	0	0	1	2
210	7	0	0	0	0	7
220	2	0	0	0	0	2
230	1	0	1	0	0	2
240	2	0	0	0	0	2
250	3	0	0	0	0	3
260	0	0	0	0	0	0
270	2	0	0	0	0	2
280	0	0	0	0	0	0
290	0	0	0	0	0	0
300	0	0	0	0	0	0
310	0	0	0	0	0	0
320	0	0	0	0	0	0
330	0	2	0	0	0	2
340	0	0	0	0	0	0
Total	23	2	1	0	1	27

Table 21. Length frequency of trout collected in the Salmon River from river kilometer 99.2 to the mouth, 1995. Fish are listed by type and collection method. Rod and reel (r&r) and electrofishing (efish) were used.

Length (mm)	Residualized steelhead		Domestic kamloops		Spokane rainbow RV clip		Hatchery rainbow (no mark)		Natural rainbow		Total
	r&r	efish	r&r	efish	r&r	efish	r&r	efish	r&r	efish	
190	0	0	0	0	0	0	0	0	0	2	2
200	0	0	0	0	0	0	1	0	0	1	2
210	2	0	0	0	0	0	0	0	0	1	3
220	2	0	0	0	0	0	0	0	0	0	2
230	0	0	0	0	0	0	0	0	0	0	0
240	0	0	0	0	0	0	0	0	0	0	0
250	1	0	0	0	0	0	0	0	0	0	1
260	0	0	1	0	0	0	0	0	0	0	1
270	0	0	0	0	0	0	0	0	0	0	1
280	1	0	1	0	1	0	0	0	0	0	3
290	3	0	2	0	0	0	0	0	0	0	5
300	3	0	1	0	0	0	0	0	1	0	5
310	0	0	1	0	0	0	0	0	0	1	1
320	3	0	1	0	0	0	0	0	0	0	4
330	1	0	1	0	0	0	0	0	0	1	3
340	0	0	1	0	0	0	0	0	0	1	2
350	0	0	0	0	0	0	0	0	0	1	1
360	0	0	3	0	0	0	0	0	0	0	3
370	0	0	2	1	0	0	0	0	0	0	3
380	0	0	5	0	0	0	0	0	0	0	6
390	0	0	2	1	1	0	0	0	1	0	5
400	0	0	1	2	0	1	0	0	1	0	5
410	0	0	0	1	0	0	0	0	0	1	2
420	0	0	0	0	0	0	0	0	0	0	0
430	0	0	0	0	0	0	0	0	0	0	0
440	0	0	0	0	0	0	0	0	0	0	0
450	0	0	0	0	0	0	0	0	0	0	1
460	0	0	0	0	0	0	0	0	0	0	0
470	0	0	0	0	0	0	0	0	0	0	0
480	0	0	0	1	0	0	0	0	0	0	1
Total	16	0	22	6	2	2	1	2	8	4	63

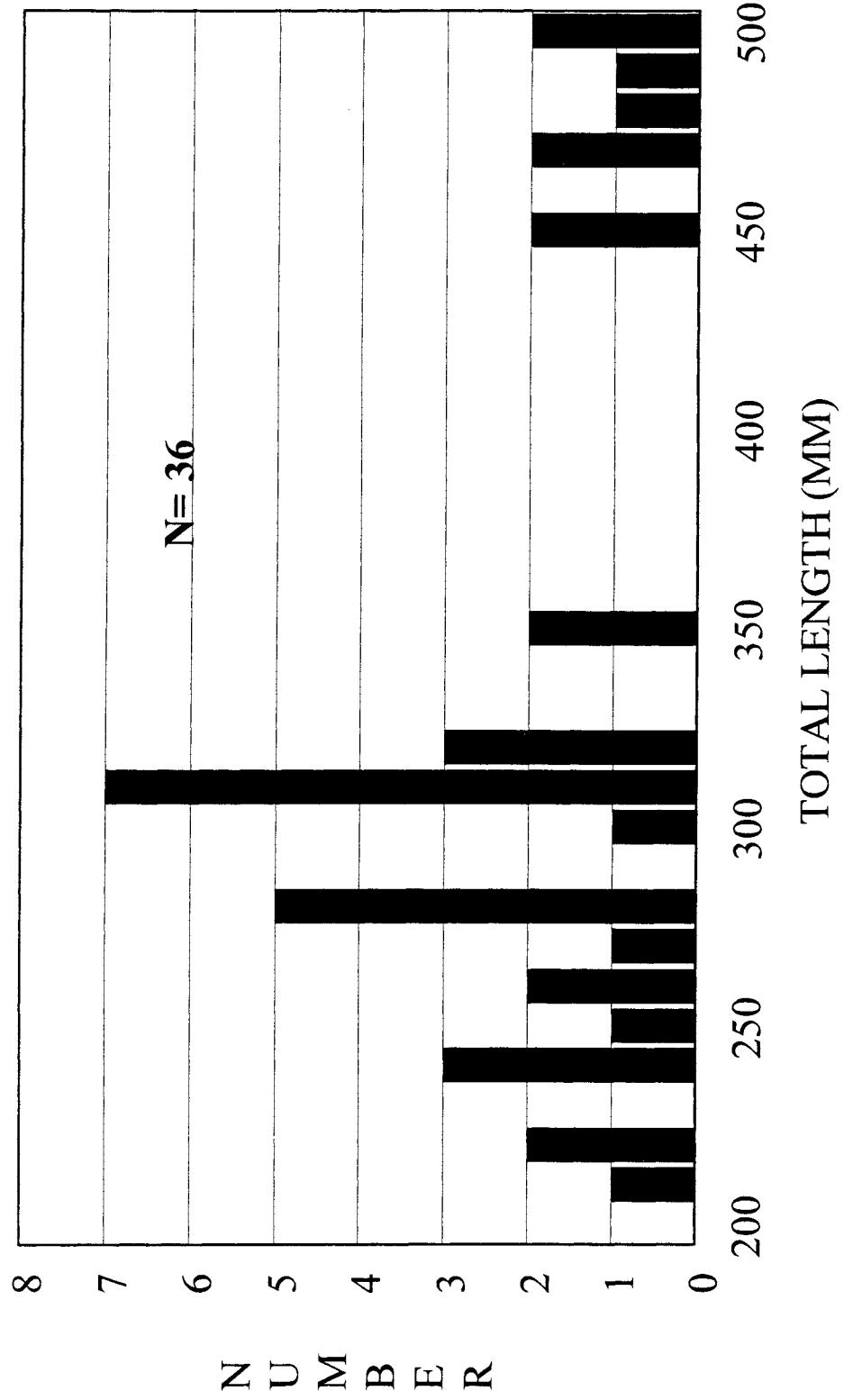


Figure 7. Length frequency of rainbow trout collected in the Hells Canyon section of the Snake River, Idaho, 1995.

## CATCHABLE RAINBOW TROUT INTRODUCTIONS

Over 13,000 catchable rainbow trout were stocked in eight streams in the Clearwater Region in 1995 (Table 22).

## KOKANEE SALMON SPAWNING GROUND COUNTS

### Methods

Since 1981, four to six tributaries to Dworshak Reservoir are surveyed annually in late September to estimate the size of the kokanee salmon *Oncorhynchus nerka kennerlyi* spawning run from the reservoir. The survey is conducted by enumerating fish starting from the mouth of each stream upstream until kokanee are no longer observed.

### Results

Results of the annual kokanee salmon spawning ground counts are given in Table 23. The total number of fish counted in three index streams was the second highest count on record.

## CREEL CENSUS

### Methods

Clearwater Region fish management personnel and conservation officers performed spot check creel census surveys throughout the region in 1995. In addition, a systematic census was conducted on the North Fork Clearwater River and Kelly Creek.

### Results

Fifteen streams were counted on a random basis in 1995 (Table 24). Regional personnel checked 277 anglers who fished 532.5 hours. Anglers reported catching 421 game fish, averaging 0.79 fish/hr.

Anglers fished an estimated 64,542 hours and reported caught an estimated 28,457 fish on the North Fork Clearwater River in 1995 (Table 25). Of the fish caught, 720 were estimated harvested.

Anglers fished an estimated 5,635 hours on the roaded section of Kelly Creek with an estimate of 14,991 fish caught and released (Table 25).

Table 22. Catchable rainbow trout stocked in Clearwater Region streams, 1995.

Water	April	May	June	July	August	September	Total
American River	--	500	1,000	750	--	--	2,250
Big Elk Creek	--	500	750	500	--	--	1,750
Lawyers Creek	--	--	500	--	--	--	500
Orofino Creek	--	500	500	--	--	--	1,000
Palouse River	--	1,000	1,000	--	--	--	2,000
Potlatch River	--	1,000	750	--	--	--	1,750
Red River	--	500	750	500	--	--	1,750
Rhodes Creek	--	1,000	1,000	--	--	--	2,000

Table 23. Number of spawning kokanee salmon observed in selected tributaries to Dworshak Reservoir, Idaho, 1981-1995.

Year	Trend Count Area				Dog Creek	Breakfast Creek
	Isabella Creek	Skull Creek	Quartz Creek	Total		
1981	4,000	3,220	850	8,070		
1982	5,000	4,500	1,076	10,576		
1983	2,250	135	66	2,451		
1984	9,000	2,200	1,000	12,200		
1985	10,000	8,000	2,000	20,000		
1986	ND	ND	ND	ND		
1987	3,520	1,351	1,477	6,348	700	23
1988	10,960	5,780	6,080	22,820	1,720	14,760
1989	11,830	5,185	2,970	19,985	1,720	14,402
1990	10,535	3,219	1,702	15,456	1,875	1,149
1991	4,053	1,249	693	5,995	590	3,557
1992	7,085	4,299	1,808	13,192	1,120	
1993	29,171	7,574	2,476	39,221	6,780	
1994	14,613	12,310	4,501	31,424	1,878	
1995	12,850	20,850	2,780	36,480	1,160	

Table 24. Summary of impromptu creel surveys in Clearwater Region rivers, 1995

Water/ Date	Anglers	Total hours	CTT	RTB	KI	SHS	BKT	BULL	KOK	WF	SMB	CAT	STR	Total	CPUE
<b>Clearwater River</b>															
1/9	2	2.0	0	2	0	0	0	0	0	0	0	0	0	2	1.00
6/11	11	14.5	0	3	0	0	0	0	0	0	2	0	0	5	0.35
7/8	5	19.0	0	2	0	0	0	0	0	0	16	0	0	18	0.95
7/13	1	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/23	6	10.0	12	0	0	0	0	0	0	5	0	0	0	17	1.70
<b>Crooked River</b>															
5/27	7	7.0	1	8	0	1	0	0	0	0	0	0	0	10	1.43
5/28	13	8.5	0	0	0	3	0	0	0	0	0	0	0	3	0.35
<b>Deep Creek</b>															
5/28	5	20.0	0	9	0	0	3	0	0	0	0	0	0	12	0.60
<b>Elk Creek</b>															
5/28	2	6.0	0	0	0	0	1	0	0	0	0	0	0	1	0.17
<b>Kelly Creek</b>															
5/27	9	11.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
5/28	3	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 24. (Cont)

Water/ Date	Anglers	Total hours	CTT	RTB	KI	SHS	BKT	BULL	KOK	WF	SMB	CAT	STR	Total	CPUE
<b>Lochsa River</b>															
5/27	8	23.5	12	0	0	0	1	0	0	0	0	0	0	14	0.60
5/28(lower)	12	18.0	3	0	0	0	1	0	0	0	0	0	0	4	0.22
5/28(upper)	12	40.5	24	0	0	0	0	0	0	0	0	0	0	24	2.00
5/29(upper)	3	8.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
6/10	5	7.0	0	0	0	0	1	0	0	0	0	0	0	1	0.20
7/15(lower)	2	4.0	6	5	0	0	0	0	0	0	0	0	0	11	2.75
7/15(upper)	15	45.0	88	6	0	0	0	0	0	0	0	0	0	94	2.09
<b>Mill Creek</b>															
5/27	1	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
<b>Moose Creek</b>															
7/1	15	35.5	58	22	0	0	0	0	0	0	0	0	0	80	2.25
7/2	2	3.0	2	8	0	0	0	0	0	0	0	0	0	10	3.33
<b>Newsome Creek</b>															
5/27	16	31.0	0	26	0	0	0	0	0	0	0	0	0	26	0.89
<b>N.F. Clearwater River--below Dworshak Dam</b>															
1/5	1	3.0	0	1	0	0	0	0	0	0	0	0	0	1	0.33
12/1	1	4.0	0	11	0	0	0	0	0	0	0	0	0	11	0.25
<b>N.F. Clearwater River--above Dworshak Reservoir</b>															
5/28	9	10.0	3	0	0	0	0	0	0	0	0	0	0	3	0.30
9/25	2	10.0	30	0	0	0	0	0	0	0	0	0	0	30	3.00

Table 24. (Cont)

Water/ Date	Anglers	Total hours	CTT	RTB	KI	SHS	BKT	BULL	KOK	WF	SMB	CAT	STR	Total	CPUE
Red River															
6/21	2	6.0	4	3	0	0	0	0	0	0	0	0	0	7	1.16
7/1	3	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/2	2	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Selway River															
7/2	2	2.0	4	16	0	0	0	0	0	1	0	0	0	20	10.0
7/9	1	3.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Snake River															
5/27	47	105.0	0	0	0	0	0	0	0	0	0	3	1	1	5
5/27	6	6.0	0	5	0	0	0	0	0	1	0	0	0	1	0.17
6/10	8	11.0	0	1	0	0	0	0	0	0	0	0	0	1	0.09
6/11	8	10.5	0	0	0	0	0	2	0	1	0	0	0	3	0.29
7/1	12	23.5	0	1	0	0	0	0	0	0	0	0	0	1	0.04
7/2	3	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/9	5	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/14	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0.00
7/15	8	10.0	0	6	0	0	0	0	0	0	0	0	0	6	0.60
<b>TOTALS</b>		<b>277</b>	<b>532.5</b>											<b>421</b>	<b>0.79</b>

CTT = cutthroat trout

BKT = brook trout

SMB = smallmouth bass

BULL = bull trout

CAT = channel catfish

KOK = kokanee salmon

STR = white sturgeon

WF = mountain whitefish

SHS = steelhead trout

WF = mountain whitefish

Table 25. Summary of angler creel census conducted on Kelly Creek and North Fork Clearwater River above Dworshak Reservoir, 1995.

N.F. Clearwater River	Kelly Creek	Section 1 <sup>1</sup>	Section 2 <sup>2</sup>	Section 3 <sup>3</sup>	Total
<u>Angler hours</u>					
$\forall$ 95% CI	5,635	58,013	2,228	4,301	64,542
<u>Fish Caught</u>	1,099	107,738	496	807	107,742
$\forall$ 95% CI	14,991	16,352	3,170	8,502	28,457
<u>Fish Caught/hr</u>	3,866	38,310	872	1,862	38,459
Ctt	1.16	0.53	0.49	0.84	0.63
Rbt	0.24	0.05	0.20	0.28	0.18
Other	0.00	0.02	0.00	0.10	0.04
<u>Fish Harvest</u>					
(All Ctt)	0.00	129	68	25	720
$\forall$ 95% CI	0.00	173	80	46	196
Fish/hr	0.00	0.03	0.01	0.01	0.02

Section 1--Dworshak Reservoir to Orogrande Creek

<sup>1</sup> Section 2--Orogrande Creek to Weitas Creek

<sup>1</sup> Section 3--Weitas Creek to Kelly Creek

## **JOB PERFORMANCE REPORT**

State of: Idaho

Name: Fisheries Management

Project II: Technical Guidance

Subproject: II-B: Clearwater Region

Contract Period: July 1, 1995 to June 30, 1996

### **ABSTRACT**

Clearwater Region fish management personnel offered technical assistance and guidance to 21 state, federal, and tribal agencies, and 111 private entities on timber sales, mining, stream channel alteration permitting, hydropower development, farm pond permits, and other proposed activities concerning bodies of water. The Region sponsored or co-sponsored 11 youth fishing clinics on Free Fishing Day. We also sponsored youth educational clinics for fly fishing and steelhead fishing throughout the year.

The region produced and printed informational brochures on fishing the Lochsa and Selway rivers.

#### Authors:

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Ed Schriever  
Regional Fishery Biologist

## JOB PERFORMANCE REPORT

State of: Idaho

Name: Fisheries Management

Project IV: Population Management

Subproject IV-B: Clearwater Region

Contract Period: July 1, 1995 to June 30, 1996

### ABSTRACT

Stocking approximately 345,300 fry and fingerling and 225,600 catchable size trout into lakes, reservoirs, rivers, and streams enhanced fish populations and fishing in the Clearwater Region.

The Region distributed 333 bluegill sunfish *Lepomis macrochirus*, 32 black crappie *Pomoxis nigromaculatus*, and 705 largemouth bass *Micropterus salmoides* to local farm pond owners for private pond stocking.

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